PADUA,
ITALY
16-17 SEPTEMBER
2022

IGM CONGRESS 2022

10th Congress of the International Society of Gender Medicine

Programme and Abstract Book

International Society of Gender Medicine (IGM)

Under the Auspices of

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UNIVERSITÀ DEGLI STUDI DI PADOVA

REGIONE DEL VENETO
Azienda Ospedale Università Padova

Centro Studi Nazionale su Salute e Medicina di Genere

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FNOMCeO
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CONTENTS

Dear Colleagues,

Welcome to the 10th International Congress on Gender Medicine organized for the first time in Italy under the aegis of the International Society of Gender Medicine.

Padua is one of the oldest University in Italy, and the first Medical School in Italy. Galileo Galilei spent 10 years in Padua and his Chair is still in the Old University Building.
This year we celebrate 800 years of the Padua University foundation.

For this reason, it is particularly important to take stock of the Gender Medicine evolution and scientific growth in the last 20 years. In fact, a number of articles dealing with sex and gender differences, about seven thousand, have been published so far.

We think is important to underline that:
- Gender Medicine is a transversal dimension of medicine involving all professionals engaged in healthcare;
- Gender Medicine is a biomedical as well as a social and ethical duty;
- Gender Medicine has to become the normal way to practice the medical duty in all specialties: in prevention, in pharmacology, in sanitary organization and, of course, in the fields of basic and clinical research.

We have tried in this Congress to put together:
- clinical findings in all medical specialities;
- biological new insights and discoveries;
- psychosocial investigations and results;
- policy needs taking into account COVID-19 pandemic;
- strategies against discriminations and inequalities.

We wish you to enjoy the Congress and the beautiful city of Padua!

Giovannella Baggio
President of the Congress

Teresita Mazzei
Vice-President

Walter Malorni
Vice-President

COMMITTEES

Italian Organizing Committee IGM 2022

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Congress Vice-Presidents
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Walter Malorni *(Rome, Italy)*

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Elena Ortona - *Reference Center for Gender Medicine of the Italian Institute of Health, Rome, Italy*

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Giuseppe Novelli - *Giovanni Lorenzini Foundation, Italy*

GENERAL INFORMATION

Organizing Secretariat

Viale Giacomo Matteotti, 7 - 50121 Florence, Italy
Tel. +39 055 50351 | igmitaly2022@oic.it

OIC srl is a MedTech Europe Trusted Partner

Registration Desk

The Organizing Secretariat Desk will be open for registration and information according to the following time schedule:

Friday, 16 September 2022	from 08:00 to 18:30
Saturday, 17 September 2022	from 07:30 to 18:30

Congress Venue

Congress Centre Albino Luciani
Via Egidio Forcellini 170/A – 35128 Padua
Tel. +39 049 803 3711

Registration Fees

Delegates:	€ 350,00
Student and under 30*	€ 200,00

* Copy of valid document (ID or passport) to certify the date of birth is mandatory to be up-loaded in the on-line platform directly (pdf format is required) during the registration process.

Registration fee is in Euro (VAT 22% included) and is mandatory for participation in the scientific sessions and for oral or poster presenters.

Congress registration fee includes:

- Access to all scientific sessions
- Access to the exhibition area
- Congress kit and name badge
- Certificate of attendance
- Coffee breaks
- Light lunches
- 16 September 2022 Evening Event

Badges

Participants are kindly requested to wear the name badge when entering the congress venue and to access any offered services. The access to the above areas and services is not allowed without the badge.

Certificate of Attendance

Registered participants will receive a certificate of attendance by e-mail.

Insurance

The Congress Organizers do not assume any liability for personal injuries sustained or loss of, or damage to, property belonging to congress participants (or their accompanying persons), either during or as result of the congress. Participants are requested to make their own arrangements with respect to health and travel insurance.

Language

The official language of the 10th International Congress of Gender Medicine is English. All participants are encouraged to join discussions, independently of their fluency in English, as the exchange of ideas and critical evaluation of presentations is the main purpose of the event.

GENERAL INFORMATION

Useful Telephone Numbers

Medical emergency: 118
Police: 113
Fire emergency: 115
Radio taxi Padua - 049 651333
For international calls from Italy: 00 + Country code + number
For international calls to Italy: +39 + City code (with 0) + number

ECM Credits (riservati ai partecipanti italiani - only for Italian participants)

I crediti formativi ECM saranno certificati dal Provider OIC srl (Nr. 2836) sulla base di quanto disposto sull'Accordo Stato Regioni del 2/2/2017 in materia e da quanto ad esso collegato.
Si ricorda, inoltre, la determinazione assunta dalla Commissione Nazionale Formazione Continua il 15 dicembre 2016 alla luce della quale ogni partecipante potrà maturare 1/3 dei crediti formativi, ricondotti al triennio di riferimento (150 totali per il triennio 2020 - 2022), mediante reclutamento diretto da parte dello sponsor e dovrà consegnare al Provider dell'evento una copia dell'invito o una dichiarazione sottoscritta attestante l'invito con firma autografa e leggibile, unitamente ai propri dati anagrafici.
Il programma scientifico del 10th Congress of the International Society of Gender Medicine è stato sottoposto dal provider OIC Srl (n. 2836) alla procedura per l'ottenimento dei crediti ECM secondo la regolamentazione approvata dalla Commissione Nazionale per la Formazione Continua il 13 gennaio 2010 e s.m.i.
I crediti sono rivolti a **Medici Chirurghi** specialisti in Allergologia ed Immunologia Clinica; Angiologia; Cardiologia; Dermatologia e Venereologia; Ematologia; Endocrinologia; Gastroenterologia; Malattie Metaboliche e Diabetologia; Malattie dell'Apparato Respiratorio; Medicina Termale; Medicina Aeronautica e Spaziale; Medicina dello Sport; Neonatologia; Neurologia; Neuropsichiatria Infantile; Psichiatria; Radioterapia; Cardiochirurgia; Chirurgia Maxillo-Facciale; Chirurgia Pediatrica; Chirurgia Plastica e Ricostruttiva; Chirurgia Toracica; Chirurgia Vascolare; Otorinolaringoiatria; Urologia; Biochimica Clinica; Laboratorio di Genetica Medica; Medicina Trasfusionale; Medicina Legale; Medicina Nucleare; Neuroradiologia; Medicina del Lavoro e Sicurezza degli Ambienti di Lavoro; Medicina Generale (Medici di Famiglia); Continuità Assistenziale; Pediatria (Pediatri di Libera Scelta); Scienza dell'alimentazione e Dietetica; Audiologia e Foniatria; Psicoterapia; Medicina Subacquea e Iperbarica; Medicina di comunità; Genetica Medica; Geriatria; Malattie Infettive; Medicina e Chirurgia di Accettazione e di Urgenza; Medicina Fisica e Riabilitazione; Medicina Interna; Nefrologia; Oncologia; Pediatria; Reumatologia; Chirurgia Generale; Ginecologia e Ostetricia; Neurochirurgia; Oftalmologia; Ortopedia e Traumatologia; Anatomia Patologica; Anestesia e Rianimazione; Farmacologia e Tossicologia Clinica; Microbiologia e Virologia; Neurofisiopatologia; Patologia Clinica (Laboratorio di Analisi Chimico-Cliniche e Microbiologia); Radiodiagnostica; Igiene, Epidemiologia e Sanità Pubblica; Igiene degli Alimenti e della Nutrizione; Direzione Medica di Presidio Ospedaliero; Organizzazione dei Servizi Sanitari di Base; Cure Palliative; Epidemiologia e ad **Assistenti Sanitari, Biologi, Chimici, Dietisti, Farmacisti Ospedalieri, Farmacisti Territoriali, Infermieri, Infermieri Pediatrici, Odontoiatri, Ostetriche, Psicologi, Psicoterapeuti, Tecnici della Fisiopatologia Cardiocircolatoria e Perfusione Cardiovascolare, Tecnici della Riabilitazione Psichiatrica, Tecnici Ortopedici, Tecnici Sanitari di Laboratorio Biomedico, Tecnici Sanitari di Radiologia Medica, Fisioterapisti, Terapisti della Neuropsicomotricità dell'età evolutiva.**
Obiettivo formativo: Tematiche speciali del S.S.N. e/o S.S.R. a carattere urgente e/o straordinario individuate dalla Commissione Nazionale per la Formazione Continua e dalle regioni/province autonome per far fronte a specifiche emergenze sanitarie con acquisizione di nozioni di processo.
I crediti assegnati al Congresso (evento n. 358333 Ed. 1) sono **4,2**.
L'accreditamento del Congresso è stato effettuato per l'intero evento in **un'unica soluzione per i giorni 16 e 17 settembre**. La rilevazione delle presenze verrà compiuta tramite l'utilizzo di scanner elettronici. Si raccomanda vivamente ai partecipanti di recarsi presso la postazione predisposta e far sempre registrare l'ingresso e l'uscita. L'assenza di una sola delle timbrature necessarie determinerà l'impossibilità di assegnazione dei crediti. Si ricorda che avranno diritto ai crediti ECM solo coloro che saranno presenti almeno al 90% dell'intero programma scientifico congressuale accreditato.
Per completare l'acquisizione dei crediti, il partecipante dovrà compilare online l'apposita "Scheda di valutazione evento": **a partire dalle ore 08:00 del giorno 17 settembre**. Tale documento sarà disponibile online; ciascun partecipante riceverà via e-mail un link al quale collegarsi per perfezionarne la compilazione.
Il questionario rimarrà online 3 giorni, si raccomanda pertanto di **completare la procedura entro e non oltre le ore 23:59 di martedì 20 settembre 2022. Oltre tale termine non sarà più possibile richiedere i crediti.**

L'attestato dei crediti verrà inviato successivamente via mail, previa verifica dei seguenti criteri:
1. la compilazione on line della "Scheda di valutazione evento";
2. la partecipazione alle sessioni scientifiche pari ad almeno il 90% dell'intera durata del Congresso.

GENERAL INFORMATION

Young Investigators Award Ceremony

The Italian Scientific Committee will be pleased to confer awards to the best Young Presenters in the Main Room on Saturday, 17 September 2022 from 18:00 to 18:30.

Slide Center

It is open at the following times:

Friday, 16 September 2022 from 08:00 to 18:30

Saturday, 17 September 2022 from 07:30 to 18:30

Presentations must be delivered to the Slide Center at least one hour before the beginning of the session, or the day before in case of early morning sessions.

Evening Event

Friday, 16 September 2022 - For registered participants

19:30 Quintetto Accademia's Concert at Sala dei Giganti (Piazza Capitaniato) followed by an aperitif at Caffè Pedrocchi (Via VIII Febbraio, 15).

Bus transfer is organized from Congress venue to Sala dei Giganti.

ACKNOWLEDGEMENTS

Con il contributo della

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Scientific Programme

16 SEPTEMBER 2022

	MAIN ROOM	ROOM 1	ROOM 2
09:00-09:30	Welcome & Introduction		
09:30-11:20	PLENARY SESSION 1 COVID-19 PANDEMIC		
	PARALLEL SESSION 1		
11:20-12:30	NEUROLOGY	DRUGS	EX-HEALTH: REDUCING GENDER HEALTH DISPARITY THROUGH DIGITAL MEDICINE. IS THIS THE WAY?
12:30-13:00	PLENARY LECTURE 1 M.J. Legato		
13:00-13:30	*Lunch*		
13:30-14:30	POSTER VIEW AND DISCUSSION - POSTER AREA		
14:30-15:00	PLENARY LECTURE 2 W. Ricciardi		
	PARALLEL SESSION 2		
15:00-16:00	15:00-16:10 RESPIRATORY DISEASES	ORTHOPAEDICS, TRAUMATOLOGY AND OSTEOPOROSIS	15:00-16:30 EDUCATION AND COMMUNICATION STRATEGIES
16:00-16:45	POSTER VIEW AND DISCUSSION - POSTER AREA		
16:45-18:30	PLENARY SESSION 2 BASIC AND TRANSLATIONAL SCIENCES		

17 SEPTEMBER 2022

	MAIN ROOM	ROOM 1	ROOM 2
	PARALLEL SESSION 3		
08:30-10:00	ONCOLOGY	SELECTED PRESENTATIONS: CARE FOR EVERYONE	SELECTED PRESENTATIONS: CARDIOVASCULAR AND METABOLIC DISEASES
	PARALLEL SESSIONS 4		
10:00 10:30	PEDIATRICS	COMMUNICATION AND EDUCATION STRATEGIES	GENDER MEDICINE: PRESENT AND PAST
10:30 11:00	POSTER VIEW AND DISCUSSION - POSTER AREA		
	PARALLEL SESSION 5		
11:00-12:30	CARDIOVASCULAR DISEASES	ARTIFICIAL INTELLIGENCE	SELECTED PRESENTATIONS: EPIDEMIOLOGY AND PSYCHOSOCIAL SCIENCES
12:30-13:30	IGM ASSEMBLY		
13:30-14:00	*Lunch*		
14:00-15:00	POSTER VIEW AND DISCUSSION - POSTER AREA		
	PARALLEL SESSION 6		
15:00-16:30	METABOLIC DISEASES	ENVIRONMENTAL EXPOSURES, SOCIAL SCIENCES AND LIFE STYLES	15:00-16:00 INFLAMMATION AND GENDER 16:00-16:30 ANTIMICROBIAL RESISTANCE AND GENDER
	PARALLEL SESSION 7		
16:30-18:00	DIVERSITY AND INCLUSION	SELECTED PRESENTATIONS: INFECTION, IMMUNITY AND ENDOCRINE ISSUES	SELECTED PRESENTATIONS: EDUCATION & COMMUNICATION IN PUBLIC HEALTH
18:00-18:30	YOUNG INVESTIGATORS AWARD CEREMONY AND CLOSING REMARKS		

09:00-09:30 | MAIN ROOM

Welcome & Introduction

PLENARY SESSION 1

09:30-11:20 | MAIN ROOM

COVID-19 PANDEMIC

Chairs: **Silvio Brusaferro** *(Italy)*, **Alexandra Kautzky-Willer** *(Austria)*

09:30 Introduction: the epidemiological burden of COVID-19 in Italy
Silvio Brusaferro *(Italy)*

09:40 Sex and gender differences and infectious diseases
Sabra Klein *(USA)*

10:10 Sex-specific biomarkers of COVID-19 progression and response to vaccination
Anna Ruggieri *(Italy)*

10:25 Covid in pediatric age: a focus on gender implications
Danilo Buonsenso *(Italy)*

10:40 Intensive care for patients with COVID-19
Marco Ranieri *(Italy)*

10:55 Discussion

PARALLEL SESSION 1

11:20-12:30 | MAIN ROOM

NEUROLOGY

Chairs: **Masahiro Akishita** *(Japan)*, **Roberto Manfredini** *(Italy)*

11:20 Sex and gender differences in Alzheimer - the gateway towards precision medicine?
Maria Teresa Ferretti *(Switzerland)*

11:40 Gender differences in Parkinson's disease
Gennarina Arabia *(Italy)*

12:00 Womens Brain Project
OC01 **Marta Di Meo** *(Switzerland)*

12:10 Missed opportunities for stroke diagnosis in patients presenting acutely in the Emergency Department of
OC02 a Swiss university hospital: a gender perspective
Cécile Barras, Carole Clair, Michel Patrik, Michael Amiguet *(Switzerland)*

12:20 Discussion

11:20-12:30 | ROOM 1

DRUGS

Chairs: **Giorgio Racagni** *(Italy)*, **Teresita Mazzei** *(Italy)*

11:20 Antidepressant drugs and gender: use, abuse and misuse
Nicoletta Brunello *(Italy)*

11:40 The role of the gut microbiome in sex-differences in pain
Siobhain O'Mahony *(Ireland)*

12:00 New monoclonal antibodies for migraine
Pierangelo Geppetti *(Italy)*

12:20 Discussion

11:20-12:30 | ROOM 2

EX-HEALTH: REDUCING GENDER HEALTH DISPARITY THROUGH DIGITAL MEDICINE. IS THIS THE WAY?

Chairs: **Ineke Klinge** *(The Netherlands),* **Anna Maria Moretti** *(Italy)*

11:20 Gender health disparity: how to identify the most approachable needs?
Eliana Ferroni *(Italy)*

11:40 Why should digital medicine be an option? How should biological and non-biological indicators be selected?
Anna Maria Moretti *(Italy)*

12:00 How can digital medicine level disparities?
Florenzo Iannone *(Italy)*

12:20 Discussion

PLENARY LECTURE

12:30-13:00 | MAIN ROOM

Introduction
Marek Glezerman *(Israel)*

The future of gender-specific medicine worldwide
Marianne J. Legato *(USA)*

13:00 *Lunch*

13:30-14:30 | POSTER AREA

POSTER VIEW AND DISCUSSION

PLENARY LECTURE

14:30-15:00 | MAIN ROOM

Chairs: **Marianne J. Legato** *(USA),* **Walter Malorni** *(Italy)*

Gender disparity and public health
Walter Ricciardi *(Italy)*

PARALLEL SESSION 2

15:00 16:10 | MAIN ROOM

RESPIRATORY DISEASES
Chairs: **Anna Maria Moretti** *(Italy)*, **Joan B. Soriano** *(Spain)*

15:00 Gender differences in diffuse parenchymal lung disorders: imaging aspects
Nicola Sverzellati *(Italy)*

15:20 Sex differences between women and men with COPD
Joan B. Soriano *(Spain)*

15:40 The impact of gender on interstitial lung disease
Paolo Spagnolo *(Italy)*

15:55 Influence of sex on the transcriptome of pheripheral blood neutrophils in COPD patients
Barbara Mariotti *(Italy)*

15:00 16:00 | ROOM 1

ORTHOPAEDICS, TRAUMATOLOGY AND OSTEOPOROSIS
Chairs: **Pietro Ruggieri** *(Italy)*, **M. Silvia Spinelli** *(Italy)*

15:00 Gender bias in orthopedic surgery
Pietro Regazzoni *(Switzerland)*

15:20 Gender-specific differences in knee osteoarthritis: from bench to bedside
Biagio Moretti, Davide Bizzoca *(Italy)*

15:40 Fragility fractures: prevention and therapy
Maria Luisa Brandi *(Italy)*

15:00 16:30 | ROOM 2

EDUCATION AND COMMUNICATION STRATEGIES
Chairs: **Luca Fabris** *(Italy)*, **Margarethe Hochleitner** *(Austria)*

15:00 Gender medicine and university teaching
Vera Regitz-Zagrosek *(Germany)*

15:20 Gender and woman ("Generedonna"): an Italian best practice promoted by patients
Antonella Celano *(Italy)*

15:35 Awareness and empowerment: the importance of the gender approach in the psoriasis management
Clara De Simone *(Italy)*

15:50 To be a woman living with a chronic rheumatic disease
Angela Tincani *(Italy)*

16:05 Why are rheumatic autoimmune diseases on the rise? The history of gender role
Leonardo Punzi *(Italy)*

16:20 Discussion

16:00-16:45 | POSTER AREA

POSTER VIEW AND DISCUSSION

PLENARY SESSION 2

16:45-18:30 | MAIN ROOM

BASIC AND TRANSLATIONAL SCIENCES

Chairs: **Giuseppe Novelli** *(Italy)*, **Karen Reue** *(USA)*

16:45 Sex chromosomes and diseases
Karen Reue *(USA)*

17:15 Considering sex as a biological variable in basic and clinical studies
Aditi Bhargava *(USA)*

17:45 Sex differences in epigenetic fetal programming
Marek Glezerman *(Israel)*

18:05 Biological clock in reproductive health of men and women
Dov Feldberg *(Israel)*

18:25 Discussion

PARALLEL SESSION 3

08:30-10:00 | MAIN ROOM

ONCOLOGY
Chairs: **Paolo Marchetti** *(Italy)*, **Anna Dorotea Wagner** *(Switzerland)*

08:30 Gender medicine and oncology: current status and challenges
Anna Dorotea Wagner *(Switzerland)*

08:50 Antitumor therapies: gender differences
Fabio Conforti *(Italy)*

09:10 Impact of gender on the efficacy and toxicity of drug treatment in colorectal cancer
Enrico Mini *(Italy)*

09:30 The prognostic role of sex and anemia in tongue cancer patients
OC03 **Oriana D'Ecclesiis, Marta Tagliabue, Aurora Gaeta, Rita De Bernardis, Sara Gandini, Mohssen Ansarin, Susanna Chiocca** *(Italy)*

09:40 Gender and sex attention in the onset of melanoma
OC04 **Monica Onorati, Barbara Valeri, Marta Nicola, Franca Di Nuovo** *(Italy)*

09:50 Discussion

08:30-10:00 | ROOM 1

SELECTED PRESENTATIONS: CARE FOR EVERYONE
Chairs: **Boris Novakovic** *(Australia)*, **Marina Pierdominici** *(Italy)*

08:30 Does gender-affirming hormonal treatment affect 30-year cardiovascular risk in transgender people? A
OC05 two year prospective European study (ENIGI)
Carlotta Cocchetti[1], Giovanni Castellini[1], Alessia Romani[1], Mario Maggi[1], Linda Vignozzi[1], Thomas Schreiner[2], Martin den Heijer[3], Guy T'Sjoen[4], Alessandra Daphne Fisher[1] *([1]Italy, [2]Norway, [3]The Netherlands, [4]Belgium)*

08:40 Epigenetic and immunological remodeling by gender-affirming hormone therapy
OC06 **Boris Novakovic** *(Australia)*

08:50 "Signposts and Technicians": a reflexive thematic analysis of how general practitioners and
OC07 endocrinologists understand their roles in transgender medicine
Jonathan Franklin, Apoorva Thakur, Vinod Patel *(United Kingdom)*

09:00 The state of affirmative mental health care for Transgender and Gender Non-Confirming people: an analysis
OC09 of current research, debates, and standards of care
Manlio Converti, Andrea Crapanzano *(Italy)*

09:10 Efficacy and safety of medical treatment in the clinical management of adolescents with gender
OC10 dysphoria (GD): a prospective follow-up study
Alessia Romani, Jiska Ristori, Francesca Mazzoli, Carlotta Cocchetti, Linda Vignozzi, Mario Maggi, Alessandra Daphne Fisher *(Italy)*

09:20 Health promotion of immigrant communities in Italy: gender and religion challenges
OC11 **Claudio Giovannini, Leuconoe Grazia Sisti, Mariangela Falà, Paola Gabbrielli, Walter Malorni** *(Italy)*

09:30 The gender gap in the diagnostic-therapeutic journey of the infertile couple
OC12 **Giuseppe Gullo, Gaspare Cucinella, Antonio Perino, Daniela Segreto, Giovanni Buzzaccarini, Rossella Tomaiuolo, Antonio Simone Laganà, Domenico Gullo** *(Italy)*

09:40 Discussion

08:30-10:00 | ROOM 2

SELECTED PRESENTATIONS: CARDIOVASCULAR AND METABOLIC DISEASES

Chairs: **Cecilia Politi** *(Italy)*, **Ute Seeland** *(Germany)*

08:30 OC13 Differences between men and women in the treatment with new diabetes medicines sodium-glucose co-transporter 2 inhibitors
Diana Rydberg, Linnéa Karlsson Lind, Karin Schenck-Gustafsson *(Sweden)*

08:40 OC14 Sex-related disparities in the management and prognosis of acute coronary syndrome in Switzerland
Carole Clair, Marie-Annick Le-Pogam, Elodie Huber *(Switzerland)*

08:50 OC15 Impaired cardiac mitochondrial homeostasis and pro-inflammatory shift in old women with myocarditis related cardiomyopathy
Maria Luisa Barcena[1], Greta Tonini[1], Pavelas Breiter[1], Misael Estepa[1], Hendrik Milting[1], Istvan Baczko[2], Ursula Müller-Werdan[1], Vera Regitz-Zagrosek[1] *([1]Germany, [2]Hungary)*

09:00 OC16 Spontaneous coronary artery dissections: analysis of non traditional risk factors
Rossella Giacalone, Marco Ferretti, Filippo Luca Gurguglione, Manjola Noni, Giovanna Maria Pelà, Antonella Vezzani, Maria Alberta Cattabiani, Giorgio Benatti, Iacopo Tadonio, Giulia Magnani, Francesco Nicolini, Giampaolo Niccoli, Diego Ardissino, Luigi Vignali, Emilia Solinas *(Italy)*

09:10 OC17 In-home pain-free exercise for the rehabilitation of peripheral arterial disease: is this the way to better outcomes in women? A 7-year cohort study
Caterina Savriè, Tsolaki Elpiniki, Giovanni Piva, Benedetta Boari, Roberto Manfredini, Vincenzo Gasbarro, Fabio Manfredini, Nicola Lamberti *(Italy)*

09:20 OC18 Predicting out-of-hospital cardiac arrest (OHCA) survival in women and men
Robin Smits[1], Shaun Sødergren[2], Ehsan Motazedi[1], Hans van Schuppen[1], Fredrik Folke[2], Martin Jonsson[3], Mattias Ringh[3], Ellinor Berglund[3], Laura van Dongen[1], Hanno Tan[1], Irene van Valkengoed[1] *([1]The Netherlands, [2]Denmark, [3]Sweden)*

09:30 OC19 Male gender: a risk factor in Kawasaki disease?
Isabella Tarissi De Jacobis, Alessandra Marchesi, Elisabetta Straface, Giovanni Orso, Marta Mosticchio, Alberto Villani *(Italy)*

09:40 Discussion

PARALLEL SESSION 4

10:00-10:30 | MAIN ROOM

PEDIATRICS
Chair: **Elena Ortona** *(Italy)*

10:00 Immunity in Children: sex and gender differences
Antonella Viola *(Italy)*

10:00-10:30 | ROOM 1

COMMUNICATION AND EDUCATION STRATEGIES
Chair: **Masahiro Akishita** *(Japan)*

10:00 Gender-specific medical library: a work-in-progress tool
OC20 **Anna Maria Moretti, Davide Bizzoca, Biagio Moretti** *(Italy)*

10:15 Gender medicine: from institutions to health care professionals and the population
Fabiola Bologna *(Italy)*

10:00-10:30 | ROOM 2

GENDER MEDICINE: PRESENT AND PAST
Chair: **Franco Lavalle** *(Italy)*

10:00 Practical strategies for gender medicine application in Italy
Alessandra Carè *(Italy)*

10:20 On the interplay between the medicine of Hildegard of Bingen and gender medicine: the role of estrogen
OC21 receptor as an example of biodynamic interface
Sabrina Melino, Elisabetta Mormone *(Italy)*

10:30-11:00 | POSTER AREA

POSTER VIEW AND DISCUSSION

PARALLEL SESSION 5

11:00-12:30 | MAIN ROOM

CARDIOVASCULAR DISEASES
Chairs: **Silvio Garattini** *(Italy)*, **Vera Regitz-Zagrosek** (*Germany*)

11:00 Opposite role of sex and gender in cardiovascular ischemic diseases
Vera Regitz-Zagrosek *(Germany)*

11:20 Heart failure and gender differences
Maria Grazia Modena *(Italy)*

11:40 Heart-brain interactions in cardiovascular diseases: why sex and gender matter
Catherine Gebhard *(Switzerland)*

12:00 Regional differences in knowledge and perception of cardiovascular risk among women in Italy
OC22 **Silvia Maffei, Martino Deidda, Susanna Sciomer, Lucia Cugusi, Christian Cadeddu, Sabina Gallina, Michela Franchini, Giovanni Scambia, Anna Vittoria Mattioli, Nicola Surico, Giuseppe Mercuro, Antonella Meloni** *(Italy)*

12:15 Discussion

11:00-12:30 | ROOM 1

ARTIFICIAL INTELLIGENCE

Chairs: **Enzo Grossi** *(Italy),* **Nasr Makni** *(Switzerland)*

11:00 Artificial Intelligence in medicine: an overview
Nasr Makni *(Switzerland)*

11:20 Gender imbalance in medical imaging datasets for Artificial Intelligence
Isabella Castiglioni *(Italy)*

11:40 Importance of gender factor in disease modelling with artificial neural networks
Enzo Grossi *(Italy)*

12:00 Sjogren's syndrome: difference in clinical presentation between male and female
Chiara Baldini *(Italy)*

12:20 Discussion

11:00-12:30 | ROOM 2

SELECTED PRESENTATIONS: EPIDEMIOLOGY AND PSYCHOSOCIAL SCIENCES

Chairs: **Eliana Ferroni** *(Italy),* **Mia von Euler** *(Sweden)*

11:00 OC23 How to measure gender in health research? Theoretical framework and proposition of operationalization for the Swiss context
Joana Le Boudec, Diane Auderset, Joëlle Schwarz, Carole Clair *(Switzerland)*

11:10 OC24 Complexity of couples in assisted reproductive technologies (ARTs): frailties and psychoglcal resources of men and women compared
Concetta Polizzi, Giovanna Perricone, Antonio Perino, Gaspare Cucinella, Domenico Gullo, Sofia Burgio, Fabrizia Rubino, Giuseppe Gullo *(Italy)*

11:20 OC25 Sex and gender differences in human gut microbiota composition and diversity
Ilire Rrustemi, Carole Clair, Joëlle Schwarz *(Switzerland)*

11:30 OC26 Gender-related factors and out-of-hospital cardiac arrest incidence in women and men: analysis of a population-based cohort study in The Netherlands
Robin Smits, Laura van Dongen, Marieke Blom, Hanno Tan, Irene van Valkengoed *(The Netherlands)*

11:40 OC27 Gender inequalities in access to healthcare services: data from the Italian National Outcome Evaluation Programme
Marcello Cuomo, Chiara Mencancini, Eliana Ferroni, Paola D'Errigo, Paola Colais, Alessandra Burgio, Elisa Guglielmi, Stefano Rosato, Marina Davoli, Giovanni Baglio *(Italy)*

11:50 OC28 Sex differences in patterns of treatment and incidence of outcomes in kidney transplant recipients
Maria Lucia Marino, Eliana Ferroni, Marco Finocchietti, Alessandro Rosa, Marco Massari, Andrea Ricci, Silvia Pierobon, Arianna Mazzone, Stefano Ledda, CESIT Project, Valeria Belleudi *(Italy)*

12:00 OC29 Differing perioperative outcomes among men and women, a cohort study
Elsa Hägglöf, Emma Larsson, Max Bell, Linn Hallqvist *(Sweden)*

12:10 Discussion

12:30-13:30 | MAIN ROOM

IGM ASSEMBLY

13:30 *Lunch*

14:00-15:00 | POSTER AREA

POSTER VIEW AND DISCUSSION

PARALLEL SESSION 6

15:00-16:30 | MAIN ROOM

METABOLIC DISEASES

Chairs: **Alexandra Kautzky-Willer** *(Austria),* **Susanna Sciomer** *(Italy)*

15:00 Obesity management/bariatric surgery: sex and gender differences
Alexandra Kautzky-Willer *(Austria)*

15:30 Gender differences in diabetes and its complications
Anna Solini *(Italy)*

16:00 OC30 Sex differences in the contribution of risk factors to the population burden of chronic kidney disease across ethnic groups. The Healthy Life in an Urban Setting study
Frouke Kingma, Irene van Valkengoed, Vianda Stel, Kitty Jager, Bert-Jan Van den Born, Eric Moll van Charante, Brechje Huisman, Frans van Ittersum, Henrike Galenkamp, Liffert Vogt *(The Netherlands)*

16:10 OC31 Sex and gender aspects in diabetes: focus on access to health care and cardiovascular outcomes
Teresa Gisinger[1], Zahra Azizi[2], Pouria Alipour[2], Jürgen Harreiter[1], Valeria Raparelli[2,3], Karolina Kublickiene[4], Maria Trinidad Herrero[2], Colleen Norris[2], Khaled El Emam[2], Louise Pilote[2], Alexandra Kautzky-Willer[1] *([1]Austria, [2]Canada, [3]Italy, [4]Sweden, [5]Spain)*

16:20 Discussion

15:00-16:30 | ROOM 1

ENVIRONMENTAL EXPOSURES, SOCIAL SCIENCES AND LIFE STYLES

Chair: **Malgorzata Debiak** *(Germany),* **Flavia Franconi** *(Italy)*

15:00 Integrating sex and gender in environmental health research
Malgorzata Debiak *(Germany)*

15:20 Toward gender-transformative social epidemiology: reflexions on the conceptualisation and operationalisation of gender in quantitative studies
Celine Miani *(Germany)*

15:40 Lifestyle effect on human male and female phenotypes
Ilaria Campesi *(Italy)*

16:00 OC32 Lifestyle as a risk factor for endocrine diseases: does gender matter? A cross-sectional study
Marta Bianchini, Giulia Puliani, Rosa Lauretta, Alfonsina Chiefari, Marilda Mormando, Irene Terrenato, Marialuisa Appetecchia *(Italy)*

16:15 Discussion

15:00-16:30 | ROOM 2

INFLAMMATION AND GENDER
Chair: **Aditi Bhargava** *(USA)*

15:00 The complex role of estrogens in the innate immune response
Adriana Maggi *(Italy)*

15:20 Inflammaging and gender
Claudio Franceschi *(Italy)*

15:40 Discussion

ANTIMICROBIAL RESISTANCE AND GENDER
Chair: **Sabra Klein** *(USA)*

16:00 Drugs, bugs, infections and antimicrobial resistance
Teresita Mazzei, Giorgio Tulli *(Italy)*

16:15 An Italian study on antimicrobial resistance and gender
Fabrizio Gemmi *(Italy)*

PARALLEL SESSION 7

16:30-18:00 | MAIN ROOM

DIVERSITY AND INCLUSION
Chairs: **Gillian Einstein** *(Canada),* **Antonella Vezzani** *(Italy)*

16:30 How an inclusive analysis contributes to health for all
Ineke Klinge *(The Netherlands)*

16:50 In-practice policies to promote an inclusive health care for transgender people
Marina Pierdominici *(Italy)*

17:10 Hormone therapy and cognitive functioning in transgender people
Gillian Einstein *(Canada)*

17:30 Considering sexual orientation and gender Identity (SOGI) in everyday clinical practice
Nikola Komlenac *(Austria)*

17:50 Discussion

16:30-18:00 | ROOM 1

SELECTED PRESENTATIONS: INFECTION, IMMUNITY AND ENDOCRINE ISSUES
Chairs: **Rosa Maria Gaudio** *(Italy),* **Kateryna Ostrovska** *(Ukraine)*

16:30 OC33 Higher testosterone is associated with increased inflammatory markers in women with SARS-CoV-2 pneumonia: preliminary results from an observational study
Elisa Maseroli, Vincenza Di Stasi, Giulia Rastrelli, Francesco Inglese, Massimiliano Beccaria, Martina Garuti, Fabio Spreafico, Giulia Cervi, Graziana Francesca Greco, Antonietta Pecoriello, Sarah Cipriani, Irene Scavello, Mario Maggi, Linda Vignozzi *(Italy)*

16:40 OC34 The impact of gender on the effectiveness of laboratory data: the case study of SARS-CoV-2 serology
Rossella Tomaiuolo, Chiara Di Resta, Chiara Sacco, Marco Viganò, Carlo Federico Perno, Francesco Giuffrida, Giuseppe Banfi *(Italy)*

16:50 OC35 Sex and gender impact mental and emotional well-being during COVID-19
Teresa Gisinger[1], Rubee Dev[2], Alexander Kautzky[1], Jürgen Harreiter[1], Valeria Raparelli[3], Karolina Kublickiene[4], Maria Trinidad Herrero[5], Colleen Norris[2], Kim L. Lavoie[2], Louise Pilote[2], Alexandra Kautzky-Willer[1] *([1]Austria, [2]Canada, [3]Italy, [4]Sweden, [5]Spain)*

17:00 OC36 Infection prevention and control for shelters during military aggression of the Russian Federation in Ukraine: do the sex and gender matter?
Kateryna Ostrovska, Dmytro Stepanskyi *(Ukraine)*

17:10 OC37 Sex-driven immune dysfunction and anxiety like behavior in adolescent rats: effect of dietary n-3 polyunsaturated fatty acid deprivation
Maria Grazia Morgese, Luigia Trabace *(Italy)*

17:20 OC39 Gender and estrogens as key factors in the response to immunotherapy in non-small cell lung cancer
Iris Chiara Salaroglio, Dario Pasquale Anobile, Sofia La Vecchia, Fabrizio Tabbò, Francesco Passiglio, Paolo Bironzo, Joanna Kopecka, Luisella Righi, Giorgio Vittorio Scagliotti, Silvia Novello, Chiara Riganti *(Italy)*

17:30 Discussion

16:30-18:00 | ROOM 2

SELECTED PRESENTATIONS: EDUCATION & COMMUNICATION IN PUBLIC HEALTH

Chairs: **Caterina Ermio** *(Italy),* **Bryn Hummel** *(The Netherlands)*

16:30 OC40 Psychosocial factors as additional eligibility criteria for screening in women and men in a multi-ethnic population: the HELIUS study
Bryn Hummel, Ralf Harskamp, Renee Bolijn, Eric Moll van Charante, Henrike Galenkamp, Anja Lok, Paula Mommersteeg, Irene van Valkengoed *(The Netherlands)*

16:40 OC41 Starting the process: a model region for gender medicine
Miriam Hufgard-Leitner, Angelika Bade, Margarethe Hochleitner, Alexandra Kautzky-Willer *(Austria)*

16:50 OC42 How to take gender into account for gender-oriented health promotion actions: the Italian experience
Luca Busani, Eliana Ferroni, Lilia Biscaglia, Federica Michieletto, Stefania Vasselli, Daniela Galeone, Angela Meggiolaro, Angela Giusti, Maria Bellenghi, Massimo D'Archivio, Claudia Cataldo, Elena Ortona, Roberta Masella, Alessandra Carè *(Italy)*

17:00 OC43 Sex- and gender-specific drug abuse dynamics: the need for tailored therapeutic approaches
Simona Zaami, Daniela Segreto, Giuseppe Gullo *(Italy)*

17:10 OC44 COVID-19-related sex and gender knowledge among virologists: frequently addressed but not prioritized in research and education
Helena Schluchter, Gabriele Kaczmarczyk, Ute Seeland *(Germany)*

17:20 OC45 Transgender health and communication strategies: the website Infotrans.it
Maria Teresa Pagano, Camilla Cittadini, Lucrezia Gambardella, Luciana Giordani, Paola Matarrese, Angela Ruocco, Carmela Santangelo, Marina Pierdominici, Matteo Marconi *(Italy)*

17:30 OC46 Education in gender medicine is overdue!
Gabriele Kaczmarczyk, Susanne Dettmer, Sabine Ludwig, Ute Seeland *(Germany)*

17:40 OC47 Reflexivity as a tool for medical students to identify and address gender bias in clinical practice: a qualitative study
Elisa Geiser, Léa Schilter, Jean-Michel Carrier, Carole Clair, Joëlle Schwarz *(Switzerland)*

17:50 Discussion

18:00-18:30 | MAIN ROOM

YOUNG INVESTIGATORS AWARD CEREMONY AND CLOSING REMARKS

13:30-14:30 | POSTER AREA

POSTER VIEW AND DISCUSSION

Chair: **Luca Fabris** *(Italy)*

P1.01 Frailty and the risk of infection-related hospitalizations in older age: differences by sex
Caterina Trevisan, Marianna Noale, Eliana Ferroni, Claudio Barbiellini Amidei, Cristina Basso, Ugo Fedeli, Giovannella Baggio, Stefania Maggi, Giuseppe Sergi *(Italy)*

P1.02 Gender difference in potentially inappropriate prescriptions in elderly
Xhoajda Taci, Alberto Francescon, Francesca Bano, Paola Toscano, Sabrina Scariot, Samuela Pinato, Eva Draghi, Nicola Realdon, Umberto Gallo *(Italy)*

P1.03 Implementing artificial intellingence in gender specific-care in academic hospitals in Italy
Tiziana Vavala, Gitana Scozzari, Ida Raciti, Antonio Scarmozzino, Libero Ciuffreda *(Italy)*

P1.04 Gender differences in repair mechanisms of chronic cholangiopathies with progressive fibrosis
Massimiliano Cadamuro[1], Labjona Haxhiaj[1], Chiara Montanaro[1], Erica Villa[1], Annarosa Floreani[1], Nora Cazzagon[1], Giovannella Baggio[1], Mario Strazzabosco[2], Paolo Simioni[1], Luca Fabris[1] *([1]Italy, [2]USA)*

P1.05 Estrogens increase structural plasticity of dopaminergic neurons through the modulation of the activity of the dopamine D3-nicotinic acetylcholine receptors heteromer
Giulia Sbrini, Veronica Mutti, Zaira Tomasoni, Federica Bono, Cristina Missale, Chiara Fiorentini *(Italy)*

P1.06 Gendered social determinants of health and the risk of thromboembolic events and bleeding in atrial fibrillation
Jonathan Houle[1], Zahra Azizi[1], Valeria Raparelli[2], Colleen Norris[1], Marco Proietti[2], Louise Pilote[1]
([1]Canada, [2]Italy)

P1.07 Seasonal patterns in ischaemic stroke in Andalusia: time series analysis by sex and age
Francisco José Rodríguez Cortés, Jorge Eugenio Jiménez Hornero, Juan Francisco Alcalá Díaz, Juan Luis Romero Cabrera, Roberto Manfredini, Pablo Jesús López Soto *(Spain)*

Chair: **Karin Schenck-Gustafsson** *(Sweden)*

P1.08 Sex and gender in cardiovascular flow models: where we are today
Francesca Maria Susin *(Italy)*

P1.09 The "Women and Heart in Menopause" prevention programme
Maria Teresa Caputo, Mojgan Azadegan, Federica Marchetti, Stefano Taddei *(Italy)*

P1.10 Incidental right atrial mass in a patient with metastatic secondary pancreatic cancer: Is it suggestive of worsening thrombosis or disease progression? A challenging case report
Agnese Maria Fioretti, Tiziana Leopizzi, Francesco Giotta, Giovanni Luzzi, Stefano Oliva *(Italy)*

P1.11 A case of gender dysphoria. Not only Yentl syndrome. Not only heart disease
Annalisa Vinci, Sara Amicone, Carmine Pizzi, Maurizio Del Greco *(Italy)*

P1.12 Role of Mediterranean diet in modulating anthropometric parameters in women with menopause
Michela Cirillo, Sonia Pompilii, Luigina Chiodi, Cinzia Fatini *(Italy)*

P1.13 Cardiovascular prevention in menopause: dietary intervention study
Francesca Meraglia, Gioele Ciaghi, Nicole Lievore, Gianluca Poncina, Aurora Favaro, Paolo Spinella, Valerie Tikhonoff *(Italy)*

P1.14 Managing cardiac arrest secondary to spontaneous coronary artery dissection: should we routinely consider ICD implantation? Insights from Parma SCAD registry
Rossella Giacalone, Marco Toselli, Giovanna Maria Pelà, Maria Alberta Cattabiani, Antonella Vezzani, Giorgio Benatti, Iacopo Tadonio, Marco Ferretti, Filippo Luca Gurguglione, Manjola Noni, Giampaolo Niccoli, Diego Ardissino, Luigi Vignali, Emilia Solinas *(Italy)*

Chair: **Roberto Manfredini** *(Italy)*

P1.15 Pregnancy and delivery of women with heart disease: a single center experience
Giulia Corana, Eliana Franchi, Silvia Maffei, Federica Marchi, Giovanna Casilla, Massimiliano Cantinotti, Emilio Sigali, Giuseppe Santoro, Nadia Assanta *(Italy)*

P1.16 Oxidative stress is related to low peak oxygen uptake by cardiopulmonary exercise testing only in women
Satoko Ojima, Takuro Kubozono, Shin Kawasoe, Takeko Kawabata, Akiko Yoshikawa, Yoshiyuki Ikeda, Mitsuru Ohishi *(Japan)*

P1.17 Left atrial function in severe mitral regurgitation in women and men - echocardiographic analysis of sex differences
Ute Seeland, Nikolaus Buchmann, David Leistner, Ulf Landmesser, Ursula Wilkenshoff *(Germany)*

P1.18 Who tests where and how often? Differences in testing incidence and testing locations between women and men during the course of the COVID-19 pandemic
Yolanda Mueller, Diane Auderset, Carole Clair, Maeder Muriel, Valérie Pittet, Joëlle Schwarz *(Switzerland)*

P1.19 Reduction in hospital admissions during SARS-CoV-2 pandemic: do any differences by sex exist?
Caterina Savriè, Ruana Tiseo, Giulia Marta Viglione, Elisa Misurati, Christian Molino, Alfredo De Giorgi, Fabio Fabbian, Franco Guerzoni, Nicola Napoli, Roberto Manfredini, Benedetta Boari *(Italy)*

P1.20 Prevalence of fatigue and the role of gender in a small sample of italian survivors of first wave Covid 19 infection
Maria Gabriella De Silvio, Paola Martucci, Antonella Serafini, Elena Lanteri *(Italy)*

P1.21 Public health strategies and SARS-CoV-2 testing in switzerland: a gender perspective
Diane Auderset, Joëlle Schwarz, Valérie Pittet, Maeder Muriel, Carole Clair, Yolanda Mueller *(Switzerland)*

Chair: **Elena Ortona** *(Italy)*

P1.22 AIFA Registry and COVID-19: the Aretusea experience of Remdesivir according to gender
Sabrina Regolo, Michela Cirillo, Manuela Cuconato, Maria Gabriella De Silvio, Cinzia Fatini *(Italy)*

P1.23 Gender differences in no-COVID patients mortality during pandemic years 2021-2022: an internal medicine Italian report
Tiziana Ciarambino, Elena Barbagelata, Sara Rotunno, Desirè Addesi, Cecilia Politi *(Italy)*

P1.24 Thrombosis and bleeding after COVID-19 vaccination: do sex differences matter? On behalf of representatives for gender medicine of scientific hospitalization and treatment institutes
Elvira Grandone, Susanna Chiocca, Serenella Castelvecchio, Milena Fini, Rossella Nappi *(Italy)*

P1.25 The Influence of sex, gender, and age on COVID-19 data in the Piedmont Region (Northwest Italy): the virus prefers men
Silvia De Francia, Alessandro Ferretti, Francesco Chiara, Sarah Allegra, Daniele Mancardi, Tiziano Allice, Maria Grazia Milia, Gabriella Gregori, Elisa Burdino, Claudio Avanzini, Valeria Ghisetti, Alessandra Durio *(Italy)*

P1.26 Covid-19 pandemic lockdown - A public health perspective on gender differences in patients with severe heart disease
Ursula Wilkenshoff, Nikolaus Buchmann, Andrea Heuberger, David Leistner, Ulf Landmesser, Ute Seeland *(Germany)*

P1.27 Gender differences in the psychopathological impact of the fourth pandemic wave of SARS-CoV2 on healthcare workers: results of the "COVID-19 Stress-Test" study at the hospital of Teramo
Lia Ginaldi, Massimo De Martinis, Domenico De Berardis, Ilenia Senesi, Anna Ceci, Maurizio Brucchi, Maurizio Di Giosia, Merty Taraborrelli, Emanuela Zenobi, Giovanni Muttillo *(Italy)*

16:00-16:45 | POSTER AREA

POSTER VIEW AND DISCUSSION

Chair: **Ineke Klinge** *(The Netherlands)*

P1.28 Complete dental care sessions in special needs individuals: a single-centre retrospective study on 1276 patients
Paola Salerno, Vladimiro Lanza, Agostino Guida *(Italy)*

P1.29 Practicing feminist medicine: intersectionality in the quest for inclusive healthcare
Lior Baruch, Leeor Shachar *(Israel)*

P1.30 Between gender medicine and feminist medicine: implementation in medical education
Leeor Shachar, Lior Baruch *(Israel)*

P1.31 Sex and gender integration in the Swiss medical curriculum (S&G integration): example of a national strategy
Virginie Schlueter, Diane Auderset, Joëlle Schwarz, Carole Clair *(Switzerland)*

P1.32 Sexism and sexual harassment among medical students: prevalence and consequences on mental health - a Swiss cross-sectional study
Jeanne Barbier, Carrard Valerie, Joëlle Schwarz, Berney Alexandre, Carole Clair *(Switzerland)*

P1.33 Preventing sexism and sexual harassment in medical schools by using theater of the oppressed as an interactive and reflexive tool
Lüthi Emmanuelle, Pichonnaz Lauriane, Joëlle Schwarz, Pascal Morier-Genoud, Caroline Dayer, Ilire Rrustemi, Léa Schilter, Berney Alexandre, Caroline John, Julie Dubois, Pierre-Yves Rodondi, Carole Clair *(Switzerland)*

P1.34 Gender differences in eating habits of Italian children
Annalisa Silenzi, Rosaria Varì, Francesca Ceppetelli, Roberta Masella, Beatrice Scazzocchio *(Italy)*

Chair: **Ute Seeland** *(Germany)*

P1.35 Gender specific medicine applied: Piedmont generalist physician training
Gabriella Tanturri, Maria Milano *(Italy)*

P1.36 Italian health professionals explore the sex and gender dimension
Teresa Calandra, Fulvia Signani, Chiara Annovazzi, Michela Lenzi, Giovanni De Biasi *(Italy)*

P1.37 Family supportive supervisor behaviors moderate links between work stress and exhaustion in academic staff at an Austrian medical university
Nikola Komlenac, Lisa Stockinger, Margarethe Hochleitner *(Austria)*

P1.38 Gender specific medicine awareness in nursing students: a questionnaire - survey
Laura Baffoni, Denise Garattoni, Khardiatou Ndiaye *(Italy)*

P1.39 Genere donna - The communication project on gender medicine and autoimmune diseases, supporting women with rheumatic and dermatologic autoimmune diseases
Laura Faravelli, Antonella Celano, Valeria Corazza, Silvia Tonolo *(Italy)*

P1.40 How to integrate sex and gender medicine into medical and allied health profession undergraduate, graduate, and post-graduate education: insights from a rapid systematic literature review and a thematic meta-synthesis
Rola Farah[1], Nicola Bragazzi[2] *([1]Israel, [2]Canada)*

Chair: **Eliana Ferroni** *(Italy)*

P1.41 Gender differences in sinonasal cancer in Italy: data from the Italian National Sinonasal Cancer Registry
Alessandra Binazzi, Davide Di Marzio, Carolina Mensi, Lucia Miligi, Jana Zajacovà, Paolo Galli, Roberto Calisti, Elisa Romeo, Stefano Murano, Silvia Eccher, Vera Comiati, Gabriella Madeo, Federico Tallarigo, Alessandro Marinaccio and ReNaTuNS Working Group *(Italy)*

P1.42 Gender differences in the SARS-Cov-2 epidemic in the Veneto Region, Italy
Laura Cestari, Eliana Ferroni, Nicola Gennaro, Michele Pellizzari, Silvia Pierobon, Elena Schievano, Ugo Fedeli, Francesco Avossa, Manuel Zorzi *(Italy)*

P1.43 How to ensure inclusivity in large-scale data studies? Lessons learned regarding sex, gender and sexual orientation in large-scale general population cohort studies
Aranka Ballering, Sarah Burke, Els Maeckelberghe, Judith Rosmalen *(The Netherlands)*

P1.44 Post traumatic stress disorder prevalence in women survivors of gender violence: an open question
Giuseppina Muratore, Roberta Barletta, Luisa Frova, Loredana Falzano, Giada Minelli, Roberta Crialesi, Alessandra Burgio, Milena Pappagallo, Anna Colucci, Andrea Piccinini, Giussy Barbara, Simona Gaudi *(Italy)*

P1.45 Gender differences in the screening of transmissible diseases with transfusion: activities of the biological qualification center of the "Cardarelli" AORN in Naples
Maria Gabriella De Silvio, Maria Criscuoli, Maria Rosaria De Pascale, Gesualda La Porta, Vittoria Barchiesi, Maria Ludovica Genna, Giovannina Longo *(Italy)*

P1.46 General practitioners and gender medicine: a survey from Campania (Italy)
Anna Castellano, Silvana Capasso, Vincenza Alfano, Francesco Marino *(Italy)*

P1.47 Pesticide exposure in girls and idiopathic premature thelarche
Cinzia La Rocca, Lucia Coppola, Sabrina Tait, Monia Perugini, Lorella Ciferri, Giovanni Angelozzi, Enrica Fabbrizi *(Italy)*

P1.48 Determinants of exposure to plasticisers in Italian children and adolescents
Cinzia La Rocca[1], Sabrina Tait[1], Emma Buzzigoli[1], Fabrizia Carli[1], Raffaele Conte[1], Lucia Coppola[1], Annalisa Deodati[1], Veronica Della Latta[1], Graziella Distante[1], Enrica Fabbrizi[1], Patrizia Landi[1], Gabriele Lori[1], Francesca Mancini[2], Francesca Maranghi[1], Anna Paola Pala[1], Annalisa Silenzi[1], Roberta Tassinari[1], Giacomo Toffol[1], Stefano Cianfarani[1], Amalia Gastaldelli[1], Roberta Urciuoli[1], Luca Busani[1] *([1]Italy, [2]France)*

Chair: **Anna Ruggieri** *(Italy)*

P1.49 Gender related drivers of environmental exposure to infectious disease
Claudia Cataldo, Maria Bellenghi, Massimo D'Archivio, Scilla Pizzarelli, Annapaola Rizzoli, Francesca Dagostin, Roberta Masella, Luca Busani *(Italy)*

P1.50 Anti-inflammatory effects of Vitamin D in T cell immunity: sex makes a difference?
Daniela Peruzzu, Marina Pierdominici, Katia Fecchi, Maria Cristina Gagliardi, Elena Ortona, Maria Teresa Pagano *(Italy)*

P1.51 Multidisciplinary model for the integrated hospital-territory management of the rheumatic patient from a gender perspective (DTAP)
Maria Gabriella De Silvio, Paola Sabatini, Antonietta Sica, Domenica Marianna Lomazzo, Caterina Palumbo, Patrizia Amato *(Italy)*

P1.52 Sex-related effect of magnesemia on infectious diseases mortality: a retrospective case-control study
Isabella Zaffina, Valentina Forte, Antonietta Accoti, Mattia Massimino, Eugenio D'Amico, Francesco Andreozzi *(Italy)*

P1.53 COVID-19 vaccine-induced sex differences in monocytic gene expression
Johannes Knapp, Aditi Bhargava *(USA)*

P1.54 The influence of sex, age and macroarea of residence on the eating habits of Italian children and adolescents from Life Persuaded project
Alice Catena, Annalisa Silenzi, Luca Busani, Roberta Masella, Sabrina Tait, Rosaria Varì, Fabrizia Carli, Amalia Gastaldelli, Stefano Cianfarani, Beatrice Scazzocchio, Cinzia La Rocca *(Italy)*

P1.55 Caloric restriction, physical and creative activities against breast cancer: our pilot study
Aurelia Mondino, Alessandra Surace, Maria Grazia Baù, Federica Gallo, Massimiliano Bortolini, Maria Piera Mano *(Italy)*

P1.56 Preconception period in women and men undergoing assisted reproduction: a gender approach for reproductive health
Michela Cirillo, Maria Elisabetta Coccia, Arianna Dimmito, Cinzia Fatini *(Italy)*

10:30-11:00 | POSTER AREA

POSTER VIEW AND DISCUSSION

Chair: **Marialuisa Appetecchia** *(Italy)*

P2.01 Change in circulating levels of endothelial progenitor cells and sexual function in women with type 1 diabetes
Antonietta Maio, Maria Ida Maiorino, Miriam Longo, Lorenzo Scappaticcio, Vlenia Pernice, Paolo Cirillo, Paola Caruso, Vanda Amoresano Paglionico, Giuseppe Bellastella, Katherine Esposito *(Italy)*

P2.02 RNA sequencing in hypothalamic nuclei reveals distinct gene expression profiles in response to exercise and sex difference
Robby Zachariah Tom[1], Sebastian Cucuruz[1], Brian Lam[2], Giles Yeo[2], Susanna Marie Hofmann[1] *([1]Germany, [2]United Kingdom)*

P2.03 Psychosocial factors as eligibility criteria for chronic kidney disease screening in women and men in a multi-ethnic sample
Frouke Kingma, Frédérique Voorhans, Liffert Vogt, Kitty Jager, Frans van Ittersum, Bert-Jan Van den Born, Eric Moll van Charante, Henrike Galenkamp, Vianda Stel, Irene van Valkengoed *(The Netherlands)*

P2.04 Gender differences in the prioritisation of health outcomes in diabetes: Informing gender-sensitive diabetes care
Ann-Kristin Porth[1], Yuki Seidler[1], Anouk Sjoukje Huberts[2], Carmen Hurtado Del Pozo[3], Angèle Bénard[4], David Hopkins[5], David Nathanson[6], Eric Sijbrands[2], Katarina Eeg-Olofsson[6], Kathryn Hamilton[5], Yvonne Hasler[7], Tanja Stamm[1], Alexandra Kautzky-Willer[1] *([1]Austria, [2]The Netherlands, [3]USA, [4]Spain, [5]United Kingdom, [6]Sweden, [7]Switzerland)*

Chair: **Maria Teresa Ferretti** *(Switzerland)*

P2.05 Sex and gender differences in migraines
Maria Francesca Rossi, Antonio Tumminello, Carlotta Amantea, Alessandra Daniele, Maria Rosaria Gualano, Ivan Borrelli, Paolo Emilio Santoro, Umberto Moscato *(Italy)*

P2.06 The role of nutrition on Parkinson's disease: a systematic review
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Tiziana Ciarambino, Pietro Crispino, Ombretta Para *(Italy)*

P2.08 Sex-related differences of MMPs in neurological disorders: a new perspective for these biomarkers
Tiziana Bellini, Maria Cristina Manfrinato, Alessandro Trentini, Massimiliano Castellazzi *(Italy)*

P2.09 Olanzapina and aloperidolo by gender differences: preliminary data
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P2.33 Sex and gender differences in depressive symptoms in a multi-ethnic population: the HELIUS study
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P2.49 Analysis of chronic pain in outpatient and sex differences in pain perception
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P2.50 Sex differences in the interplay between cerebral small vessel disease (CSVD) risk factors and cognitive decline
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P2.51 A sex and gender-differentiated approach in psychiatric care: widening horizons
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Abstract Book

INVITED SPEAKERS

Gender differences in Parkinson's disease

Gennarina Arabia
Institute of Neurology, Department of Medical Sciences. University "Mangna Graecia" of Catanzaro, Italy

Sex and gender-related differences are reported in many aspects of Parkinson's disease (PD), including the effect size of risk factors, the disease onset, the type and prevalence of motor and non-motor symptoms, medication use, levodopa bioavailability, neuropsychiatric and cognitive changes, caregiver reliance, access to health care and quality of life.
In PD patients, sex differences have been reported both in motor and in non-motor symptoms frequencies and severity. Indeed, men tend to present with more severe motor symptoms than women. For instance, several studies have reported significantly worse rigidity in men with PD as compared to women and more frequently symptoms, such as writing difficulties, speech and gait problems, and sialorrhea among males than females. In addition, men tend to show an earlier age at symptom onset in comparison to women, with a difference of approximately two years. Indeed, a milder phenotype, more often a tremor-dominant, and a slower rate of decline of motor impairment are typically more frequent in women with PD. On the other hand, women have a higher prevalence of motor fluctuations and dyskinesia.
For both medical and surgical treatment for PD, differential responses can be found for men and women. Numerous studies have highlighted the differences in levodopa pharmacokinetics and pharmacodynamics between the sexes. To date, however, no recommendations have been formulated about sex and gender-specific management of medical treatment in PD.
More in general, management of people living with PD need a more personalized approach considering sex, gender and cultural context to accurately select drugs and device and organize the most appropriate medical, psychological and social support for each affected individual.

INVITED SPEAKERS

Sjögren's syndrome: difference in clinical presentation between male and female

Chiara Baldini
University of Pisa, Italy

Sjögren's syndrome (SS) is a complex and heterogeneous disorder that exhibits a strong trend of female predilection with a male-to-female ratio up to 1:20.
In the first part of the presentation a brief literature review on the pathogenetic mechanisms underlying the profound female predominance of SS will be provided. Studies focusing on the roles of the different hormonal milieux between the two genders have so far been inconclusive. Recently, the genetic imbalances created by the different sex chromosomes in each gender have been extensively investigated. More specifically, the presence of a second X chromosome, rich in immune-related genes (FOXP3, TLR7, CD40LG, etc.), has been implicated in the clinical expression and pathogenesis of systemic autoimmune diseases Therefore, the clinical phenotyping of male patients with SS may reflect different underlying pathogenetic mechanisms associated with different clinical expressions, outcomes and responses to treatment. In the second part of the presentation the clinical, serological and histologic different features between male and female patients with Sjögren's syndrome (SS) will be discussed and the potential effect of gender on lymphoma development will be summarized. Particularly, data from the international HarmonicSS consortium will be presented. The HarmonicSS project, funded by the European Commission, gathers the largest European cohorts of pSS patients along with highly experienced engineers and bioinformaticians, to successfully harmonise and integrate the maximum possible data from all the involved clinical partners thus offering new tools for large data analysis. Finally, the possible usefulness of Auto Contractive Map (AutoCM), a data mining tool based on an artificial neural network (ANN) in discriminating different pSS subsets will be also presented.

INVITED SPEAKERS

Considering sex as a biological variable in basic and clinical studies

Aditi Bhargava
University of California, San Francisco, USA

Biological sex is an important variable that is seldom considered in animal and pre-clinical studies, or in clinical trials. Biological sex is dichotomous. In a fertilized zygote, sex determination stems from unequal expression of genes present on both sex chromosomes and autosomes; sex hormones exert their effect later in embryonic development. By contrast, gender includes perception of the individual as male, female, or other, both by the individual, and by society. Interchangeable use of the terms sex and gender deemphasizes the significance of gender as an independent variable. Three major factors contribute to sex and/or gender differences in human physiology and function - sex hormones, genes, and environment. To understand mechanisms that contribute to sex and/or gender differences in health and in diseased state, one needs to determine the relative contribution of these three factors. Behavioral studies must also consider the contribution of "observer effect". An individual's health is additionally determined by extraneous factors such as the socioeconomics, demographics, education level, profession, age, and the environment etc. Thalidomide, a drug prescribed to many pregnant women in the late 1950s to relieve nausea was tested in animals and in men, but not in women or even pregnant animals. Thalidomide caused multiple birth defects, most notably phocomelia (arrested limb development) and postnatal deaths, but it still took years to recognize its harm and

pull it off the market. It has been nearly a decade since the National Institutes of Health required researchers to consider sex as a biological variable (SABV), but the process suffers from poor implementation, enforcement, and no accountability in publications or reporting of data. Pharmacology is the only field in which the numbers of publications that analyzed data in a sex segregated manner doubled between 2009 and 2019, whereas in most biological fields, there has been no change. Researchers often lack relevant resources and training to study sex and/or gender differences. Experimental design and data analysis lack rigor and statistical methods used to test for sex differences are often incorrect. Examples of data analyzed in sex segregated manner to ascertain biological mechanisms and function in health and in disease will be presented. In summary, haphazard implementation and adoption of SABV will decrease, rather than increase, rigor, and reproducibility.

INVITED SPEAKERS

Gender-specific differences in knee osteoarthritis: from bench to bedside

Biagio Moretti[1], Davide Bizzoca[2]
[1]Orthopaedic and Trauma Unit Università degli Studi di Bari Aldo Moro, Italy, [2]AOUC Policlinico di Bari, Italy

Osteoarthritis (OA) is the most prevalent degenerative joint disease and a leading cause of pain and disability in elderly people. The Osteoarthritis Research Society International (OARSI) defines OA as "a disorder involving movable joints characterized by cell stress and extracellular matrix degradation initiated by micro- and macro-injury that activates maladaptive repair responses including pro-inflammatory pathways of innate immunity".
OA, affecting 250 million individuals worldwide, mainly over-65 adults, represents a significant social health problem.
Female sex is a well-established risk factor for knee OA in older adults. Moreover, risk factors such as obesity are stronger predictors among women than men due to inflammatory and mechanical disease drivers. Previous studies indicate that women over the age of 50 have a higher prevalence of knee OA and experience greater functional disability compared to men of the same age, but the reasons for this difference are poorly understood. Painful knee OA is also an independent predictor of mortality in middle-aged women.
The present study aims to (1) define the sex-related differences in knee osteoarthritis pathogenesis, focusing on the study of synovial fluid proteome; (2) discuss the gender- and sex-related differences in clinical practice in patients suffering from knee OA and (3) present the results of a recent multidisciplinary medical survey dealing with the influence of sex and gender on the management of late-stage knee OA.

INVITED SPEAKERS

Gender medicine: from institutions to health care professionals and the population

Fabiola Bologna
Secretary at the 12th Committee for Social Affairs and Heath care-Chamber of Deputies, Italian Parliament
Member of technical working group in gender-specific medicine of the Lombardy Region, Italy

The idea of a publication on gender-specific medicine in the Chamber of Deputies developed within the technical working group of the Lombardy region in agreement with the team manager Franca Di Nuovo MD. We thought of a collection of articles written by the participants in the Lombardy working group and by national experts in gender-specific medicine. With its plain language, the publication is aimed at institutions and healthcare professionals interested in understanding the history and importance of gender medicine. The publication includes 9 articles dealing with the importance of gender specific medicine to research and new trends and the importance of gender specific medicine Associations. We consider gender specificity as a strategic objective for health systems based on the personalization of care pathways to promote appropriateness, savings, reduction of health costs and errors in the healthcare system. Gender- specific medicine has been able to anticipate future evolution, by foreseeing the changes and emerging trends, investing in research and development, to guarantee an ever greater attention to gender and gender disparities still present in the various areas of care. Every physician in every specialty should know better about gender differences in relation to the diseases or could deepen the study in still unexplored fields through Gender medicine conferences, congresses, courses, research and innovative centers. The first Law in the World and in Europe on Gender Specific Medicine was born in Italy, which was promulgated in January 2018 (Law 3/2018 art 3) . As required by law, the National Plan for the application and dissemination of Gender Medicine was prepared and included specific objectives, the actions to be taken, the actors involved and the monitoring indicators for a real application of Gender Medicine on the National territory. The 4 areas of action plan are: clinical pathways: prevention, diagnosis, care and rehabilitation; research and innovation; professional training and updating, communication and information. Talking about gender specific medicine today means developing a culturally dynamic concept to plan personalized care and assistance with the aim of guaranteeing the best provision of health treatments for all in the fields of prevention, diagnosis, therapy and rehabilitation. A substantial cultural change is affecting global healthcare organization and is aiming at guarantee the principles of universality and equality in assistance. Every initiative to inform and make institutions, health care professionals and the population aware of gender medicine is crucial for the sustainability of the health care system.

I would like to thank the following professionals and colleagues:

- ^Dr. Franca Di Nuovo, Silverio Guanti, Prof. Livio Luzi, Prof. Daniela Perani, Prof. Marina Pizzi, Dr. Annalisa Voltolini, Dr. Laura Zoppini, Technical Group on the Gender Medicine in Lombardy Region
- Dr. Alessandra Carè e Dr. Elena Ortona, Istituto Superiore di Sanità
- Prof. Giovannella Baggio, Centro Studi Nazionale su Salute e Medicina di Genere
- Dr. Antonella Vezzani e Dr Rosalia Sorce, Associazione Italiana Donne Medico
- Dott.ssa Marina Rizzo, Donne in Neuroscienze e SIMeGen Women in Neuroscience

INVITED SPEAKERS

Covid in pediatric age: a focus on gender implications

Danilo Buonsenso
Department of Woman and Child Health and Public Health, Fondazione Policlinico Universitario "A. Gemelli", Rome Italy

The impact of the Covid-19 pandemic has been overwhelming in adults and significantly milder in children. However, severe pediatric cases, including deaths, have been recorded worldwide. In addition, a group of children have been suffering from a rare, but severe, acute multisystem inflammatory syndrome (MIS-C), a systemic inflammatory disease triggered by SARS-CoV-2 infection in a probably predisposed child. Last, children can also develop Long Covid (or Post-Covid Condition) as previously described in adults, although pediatric Long Covid seems to be rarer and less severe compared to the adult population.
In adults, gender differences in developing more severe acute Covid-19 or Long Covid have been documented, but this topic has been less discussed in children.
In my talk I will analyze gender differences in pediatric Covid-19, MIS-C and Long Covid according to available evidence, since such an analyses can provide interesting clues on how gender, and hormones, can be involved in disease manifestation in different age groups.

INVITED SPEAKERS

Antidepressant drugs and gender use, abuse and misuse

Nicoletta Brunello
Department of Life Sciences, University of Modena and Reggio Emilia, Italy

Depression is the most prevalent mood disorder and a leading cause of mortality and morbidity worldwide. Despite its high incidence and socioeconomic impact, the etiology of depression remains poorly understood. It involves a combination of genetics and environmental factors as well as the dynamic interaction of a number of brain regions, however, it is not clear how these factors interact to trigger depression. Adding to this complexity are the differences observed between men and women. Women are nearly twice as likely as men to suffer from depression, and more than 2/3 of suicide attempts are by women. Female depressed patients show greater severity, earlier age of onset, and increased duration of depressive episodes as compared to male patients.
Currently, several drugs are available for the treatment of depressive disorders, selective serotonin reuptake inhibitors (SSRIs), serotonin and noradrenaline reuptake inhibitors (SNRI) and tricyclics (TCA), however these drugs are successful in only a fraction of the population, take weeks to months to be effective in responders and their side effects make them less than ideal. Efficacy also differs between the sexes. The disparity in depression and antidepressant response between males and females includes differences in neuronal circuitry, hormone levels, and metabolism; however, the reason for these sex differences remains unclear. There is not a clear consensus on whether there are sex differences in pharmacotherapy antidepressant efficacy. A number of studies have shown that men experience a better therapeutic response to TCAs than women, whereas there is evidence that women respond better to SSRI treatment than men. The subtype of depression determines the antidepressant response, and the presentation of symptoms differs between men and women; women tend to show more somatic symptoms associated with atypical depression, which has been found to respond preferentially to SSRIs.
SSRIs are generally well tolerated and considered to be safer than earlier antidepressants even if recent evidence shows that SSRIs are associated with a withdrawal reaction upon the abrupt discontinuation of long-term use of regular/high doses. A further emerging problem is that SSRIs may themselves be entering the repertoire of polydrug users. Whilst SSRIs are generally considered not to possess any abuse liability, a few case reports/series of their misuse have identified the intake of fluoxetine and sertraline by those taking 3,4 methylenedioxymethamphetamine (MDMA) at clubs to prolong the "high" from 2 to 4 h and make the "come down" easier. Although antidepressant abuse is relatively rare compared to other prescription drugs such as opioids or benzodiazepines, recent studies confirm and characterize the abuse potential of antidepressants in subjects with opioid use disorders.

INVITED SPEAKERS

Lifestyle effect on human male and female phenotypes

Ilaria Campesi
Dipartimento di Scienze Biomediche, Università di Sassari. Sassari, Italy

Personalized medicine has the goals to study modification of markers profile in the single individual and gender medicine actively participates in the achievement of this goal because sex and gender are the major sources of variability among individuals in health affecting health and disease processes, including drug response, and influencing daily clinical practice and biomedical research. In fact, sex and gender medicine focuses on differences and similarities in health and

disease between men and women.
Endogenous and exogenous factors affect both sex and gender. In particular, the effects of smoking (both in men and fertile women) and the use of combined hormonal contraception (fertile women), as well as they concomitant utilization (regarding 27% of fertile women) on the metabolome, the hormonal milieu, and biomarkers is here reported.
Despite the paucity of data, it emerges that the above three conditions create different phenotypes above all in women, while smoking creates a different male phenotype. In view of the large diffusion of smoking, combined hormonal contraceptives, and the association of the two, more research is needed to improve the health and care of people.

INVITED SPEAKERS

Practical strategies for gender medicine application in Italy

Alessandra Carè
Reference Center for Gender Medicine, Italian Institute of Health, Rome Italy

The Italian law no. 3/2018, for the first time in Europe, guarantees the inclusion of 'sex and gender' parameters in all medical specialties, in the development of diagnostic and therapeutic pathways, as well as in research, training and dissemination among all health professionals and citizens. A National Plan was prepared to provide a coordinated and sustainable direction for the application of Gender Medicine in four macro-areas: i) clinics, ii) research, iii) training and iv) dissemination strategies. In particular, the main aims, the required actions and the involved actors were defined for each macro-area.
A National Observatory dedicated to Gender Medicine was then established at the Italian National Health Institute (Istituto Superiore di Sanità-ISS). The members of the Observatory were appointed by a decree signed by the President of the ISS and they have been working since April 2021. The main objective of the Observatory is to ensure promotion, maintenance over time and monitoring of the actions envisaged by the National Plan. To this end, some steering documents containing concrete indications for i) organizing the research protocols, ii) defining the therapeutic paths, iii) identifying the correct way to communicate with patients, taking into account gender differences, are in preparation.
In line with the National Plan for Prevention (PNP 2020-2025), which pursues the gender approach as a change of perspective to improve the appropriateness of prevention and therapeutic interventions, we are also proposing the inclusion of sex and gender application in the Regional prevention plans.
We are finally facing a growing awareness of the sex and gender relevance associated with health and diseases. Even so, we have to proceed further in this direction considering that the attention to gender differences in biomedical research represents a needful step toward equity in prevention, diagnostics, and appropriateness of care for each person, regardless of its sex.

INVITED SPEAKERS

Gender imbalance in medical imaging datasets for Artificial Intelligence

Isabella Castiglioni
University of Milano-Bicocca, DeepTrace Technologies srl, Centro Diagnostico Italiano, Milan, Italy

Machine learning (ML) is revealing a powerful emerging technology with well-documented results in improving screening, diagnosis and therapy and in defining biomarker signatures in several precision medicine applications, also where sex and gender differences has been reported, such as, in diabetes, cardiovascular, neurological and oncological diseases, and in immunology.
However, if desirable bias may be accepted by including in ML modelling sex or gender features to highlight sex/gender-based differences in screening or diagnostic criteria of diseases, it is important to warrant that ML systems do not generate or widen sex- and gender-based disparities in access to healthcare. Undesirable biases should be avoided as those derived from training ML models on datasets with underrepresentation of minority groups.
Sex and gender differences should be taken into consideration in ML algorithms in those clinical applications where there are important differences in the epidemiology and clinical presentation of conditions. Otherwise, if there are intrinsic differences in the population, such as sex or gender differences in disease prevalence, ML models that well suit to the majority group may not be generalized for minority ones.
The contribution deals with the topic of group bias in ML, presenting several application examples, and focuses on methodological approaches that can be used to mitigate such bias, to warrant, at the same time, both group equity and individual equity in ML models used for precision medicine.

INVITED SPEAKERS

Genere donna: an Italian best practice promoted by patients

Antonella Celano
President of APMARR (Associazione Nazionale Persone con Malattie Reumatologiche e Rare-APS), Italy

The World Health Organization (WHO) defines Gender-specific Medicine as the study of how (sex-based) biological and (gender-based) socioeconomic and cultural differences influence people's health. A growing amount of data shows significant differences in the development, progression and clinical signs of conditions that are common to men and women, the adverse events associated with therapeutic treatments, the response to such treatments and nutrients, and in lifestyles [1].
In autoimmune diseases (AD), particularly rheumatic

and dermatologic, Gender makes the difference. They more frequently affect women, arise in their childbearing age, negatively touching different sides of life: job, family, and the overall quality of life. For example, according to statistics women with AD tend to have fewer kids than they wish: they fear that the disease or drugs are harmful for the baby, that pregnancy may stop remission or lay to a flareup of the disease.
People affected by rheumatic and dermatologic AD frequently ask the web looking for correct and reliable information, to clarify doubts and to live their life empowered and informed. Patients' Associations have a direct spotlight on this, thanks to their tireless commitment in listening and giving voice to patients, who are first of all People.
The close teamwork of the main Italian patients' associations ANMAR (Associazione Nazionale Malati Reumatici Onlus), APMARR (Associazione Nazionale Persone con Malattie Reumatologiche e Rare APS) and APIAFCO (Associazione Psoriasici Italiani Amici della Fondazione Corazza) and some authoritative experts in AD (5 physicians and a welfare expert) gave birth to Genere Donna, the Italian awareness campaign on Gender Medicine focused on rheumatic and dermatologic AD.
Genere Donna aims to meet the patients' unmet needs and spreads updated and clear information, validated by experts, about gender medicine and AD, to improve knowledge, promoting patients' empowerment and the importance of a gender approach in Public Health.
Launched in July 2021, the website www.generedonna.it and the social media channels are the heart of the project. After only one year, results are remarkable: more than 80k website users (72% female) over 370k page views, 1.8Mln reach and 190K interactions on social media and the social community is made of over 22k people.
Supported by a communication agency, Genere Donna counts on an educational grant from UCB Pharma Italy (main sponsor) and other partners.
Genere Donna recently received the patronage of Società Italiana di Reumatologia-SIR.

Reference
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INVITED SPEAKERS

Awareness and empowerment: the importance of the gender approach in the psoriasis management

Clara De Simone
Istituto di Dermatologia, Fondazione Policlinico Universitario "A.Gemelli", IRCCS, Università Cattolica del Sacro Cuore, Rome, Italy

Psoriasis is a common, chronic inflammatory disease with a multifactorial pathogenesis. Mean age at presentation of psoriasis is 28 years in women, which is almost the height of fertility age. Therefore, the impact of psoriasis and its treatment on fertility, pregnancy, and breastfeeding should be highlighted for a proper management. When approaching to a psoriatic woman of childbearing age, Healthcare Providers should be adequately informed and ready to provide the patients with answers to the most frequently asked questions. In this setting, counselling of psoriatic women during their reproductive years is extremely important and should be part of the physician-patient communication. The Italian Society of Dermatology and Venereology (SIDeMaST) has fostered a Task Force named "Psoriasis in Women of Childbearing Age" which is composed by a group of Italian female dermatologists with a high expertise in psoriasis treatment. The aims of the Task Force are to increase awareness of the disease and its treatment in patients of childbearing age among both dermatologists and women affected by psoriasis and to encourage counselling on family planning. With the aim of providing a real support for the proper management of the delicate journey to motherhood, the Italian Task Force has published two different informative booklets addressed to patients and dermatologists which focus on the main issues regarding psoriasis in women of childbearing age. Furthermore, with the aim of exploring the unmet needs of women with psoriasis during childbearing age, the Task Force also conducted a survey on reproductive issues through a self -reported questionnaire ; analysis of preliminary data showed inadequate knowledge about some aspects of pregnancy among patiets with psoriasis : these results confirm that strategies are needed to improve physician-patient communication.
When it comes to communication, to get correct and validated information is crucial especially for women who suffer from an autoimmune deseases and want to become mother.
Both Scientific Societies and Patients Associations play a key role in supporting awareness campaigns and the website Genere Donna is a best practice able to join the patients' needs and the answers from the specialists but also to facilitate the dialogue between them.

INVITED SPEAKERS

Integrating sex and gender in environmental health research

Sophie Fichter[1], Katrin Groth[1], Nina Fiedler[1], Marike Kolossa-Gehring[1], Malgorzata Debiak[2]
[1]Health-Related Environmental Monitoring, [2]Section IV 2.2 Pharmaceuticals Toxicology, German Environment Agency, Berlin, Germany

Comprehensive consideration of the social and biological diversities of sex and gender as well as their interdependencies is still missing in environmental health research. The assessment of sex and gender is mostly limited to a binary understanding of sex along with the inconsistent, interchangeable use of sex and gender terms and not supported by the gender theory. Thus, closing gender inequalities remains one of the key challenges in environmental health studies and policy.
Having a long-lasting expertise in human biomonitoring

(HBM) German Environment Agency (UBA) challenged the task of implementation of sex and gender in this area of environmental health research. Human biomonitoring is a method for assessment of human exposure to chemicals. It involves the analytical determination of chemicals and/or their metabolites in human body fluids or tissues, mostly blood and urine. The individual chemical body burden depends on the environmental chemical deposition as well as to the individual biological parameters, living conditions and consumer behavior, indicating the particular importance of sex and gender related factors. Supported by the third party funded collaborative project INGER we assessed in a systematic approach the current state of the art of the implementation of sex and gender in the international HBM programs, identified the data gaps and possibilities for their closing. Selected hypotheses were tested within UBA HBM studies. These results will be presented and discussed in the context of the additional value for interpretation of HBM data and policy advice.

INVITED SPEAKERS

Hormone therapy and cognitive functioning in transgender people

Gillian Einstein
University of Toronto, Canada

The cognitive effects of gender affirming hormone therapy (GHAT) in transgender persons is still an open question. While there have been studies focused on the origins of transgender cognition with most of them based on the performance sex-advantaged tasks like mental rotation, none have thoroughly explored cognitive performance on these tasks prior to transition and taking the menstrual cycle into account. To better understand the effects of endogenous as well as exogenous hormones in trans men, we tested them prior to GHAT at different menstrual cycle stages, comparing their performance to cis women and cis men and after GHAT. We found that trans men prior to GHAT perform mental rotation tasks similarly to cis women and after GHAT, similarly to cis men. By studying mental rotation at different menstrual cycle phases, we found that cis-women and trans men without GHAT performed as well as cis men when those assigned female at birth were tested in the early follicular phase, when estradiol is low. This suggests that the circuits for mental rotation are modulated by hormonal milieu and can change depending on the presence or suppression of 17-β-estradiol.
One group of trans men who make higher levels of endogenous androgens are those with Polycystic Ovarian Syndrome (PCOS). Cognition in women with PCOS has focused on presumably cis women and shown that while they make higher levels of free testosterone, performance on male-advantage tasks does not differ from that of women without PCOS. However, performance on female-advantage tasks does seem to differ with performance being slightly worse on in terms of speed and accuracy on reaction time and word recognition tasks without any noticeable functional impairments. We wondered if persons identifying as trans or gender-queer might not identify some positive sides of PCOS in relation to their gender identity.
To better understand PCOS effects on trans, non-binary, gender fluid or gender queer persons, we interviewed 10 with a diagnosis of PCOS asking them about their lived experiences with PCOS as well as how their gender identity might affect their PCOS experience. Three overarching themes emerged: PCOS as a burden, PCOS as an occasion, and PCOS as a benefit. While some aspects of PCOS (e.g., excessive menstruation) created an additional burden for our participants, other symptoms such as excess body and facial hair could be empowering and affirming revealing a positive aspect of this chronic condition for some gender identities.
Follow up studies on the effects of long-term GHAT in older trans women are currently underway.

INVITED SPEAKERS

Biological clock in reproductive health of men and women

Dov Feldberg
Helen Schneider Hospital for Women, Rabin Medical Center and Tel Aviv University School o Medicine, Ob/Gyn, Petach Tiqva, Israel

In December 2017, three American scientists were awarded a Nobel Prize in Physiology and Medicine for the discovery of molecular mechanisms of the circadian rhythm. The award ceremony speech included the following statements: "Our physiology is regulated by an internal clock that generates daily rhythms known as "circadian" (from the Latin circadiem meaning "around one day.") Life on Earth is adapted to the rotation of our planet, and the internal clock anticipates day/night cycles, helping organisms optimize their physiology and behavior. Although the existence of a biological clock has been known for nearly a century, only recently have we begun to understand what is made of and how it keeps ticking".
Circadian rhythmicity is evident in a wide range of physiological systems, including the reproductive axis. The recent discoveries of the rhythmic expression of the biological clock genes in peripheral and reproductive tissues show that circadian rhythms play an important role in optimization of fertility.
Clock genes are highly conserved across species, including humans, and are most active in male and female reproductive performance. Circadian rhythmicity is interconnected with human reproduction, and it is involved in a wide range of physiological systems, via hormonal and neural routes. Disruption of clock gene expression can lead to a spectrum of reproductive failures in men and women. Changes in circadian rhythmicity and the biological clock cause aging of the female and male reproductive systems over their life span. Mutations in clock genes with changes in the circadian rhythmicity, with genetic polymorphism, can cause infertility in humans. The impact of clock genes in the embryo still remains an enigma, that should be

investigated and resolved in the future.
There are similarities and differences in the biological clock structure between the sexes. Circadian rhythms work similarly in environmental adaptation of males and females, but their functions in respective reproductive systems are absolutely different.

INVITED SPEAKERS

Sex and gender differences in Alzheimer - the gateway towards precision medicine?

Maria Teresa Ferretti
University of Zurich, Switzerland

Neurological disorders are highly prevalent and debilitating diseases. They represent the second leading cause of death and the main cause of disability worldwide. New approaches are urgently needed to improve standard of care and discover new treatments.
Cumulating evidence has indicated high degree of patient variability in neurodegenerative disorders and in particular in Alzheimer's disease. Precision medicine, already in use in oncology, might provide substantial progress in the field, from molecular diagnosis to tailored treatments.
In this regard, sex and gender differences are emerging as leading drivers of patient heterogeneity in Alzheimer. These differences offer therefore a useful starting point to discuss potential applications of precision medicine in neurology.
In this talk I will discuss the state of the art on sex and gender differences in biomarker research, clinical trial design and development of digital health technologies, highlighting the work that the non-profit organization Women's Brain Project is doing in this field. Implementing sex and gender sensitive medicine in Alzheimer has the potential to improve diagnostic and prognostic accuracy of current and future biomarkers, increase the effectiveness of prevention campaigns and as well as facilitate the discovery of new, tailored treatments.
A proper understanding of sex and gender-differences will be key towards a precision medicine paradigm for neurodegenerative diseases, beyond a 'one size fits all' approach and towards sustainability.

INVITED SPEAKERS

Gender health disparity: how to identify the most approachable needs? Focus on an epidemiological approach

Eliana Ferroni
Gender Health A.I.E (Italian Association of Epidemiology), Italy

Digital health can transform the access, delivery and availability of healthcare and is set to revolutionise the healthcare sector in the future. Technologies such as telemedicine, smartphone apps, wearables and artificial intelligence (AI) are likely to be widely integrated in healthcare delivery. The preliminary results of EX-Health project have showed how digital health tools can help in reducing gender health disparities, given that some prerequisites are well defined and certain actions triggered. First, there is the need of an appropriate education on digital health, as well as on gender-specific medicine, for all healthcare professionals (HCPs: Physicians, Pharmacists, Nurses, Technicians, and Clinical Engineers). The culture underlying gender-specific medicine, starting from the language and terminology related to gender (and its definition), is an essential prerequisite of awareness, equal access and identification/generation of the correct tools between genders. Second, the use of digital health tools should take into account the digital literacy of all the figures involved, also with regard to the management of the remote visit, and the importance of maintaining the personalisation and humanisation of care. Then, the evaluation of the effectiveness of the proposed solutions from a gender perspective (whether digital or traditional) can only take place if appropriate and measurable indicators are defined a priori.
Epidemiological research is playing an important role in bringing out the differences between men and women in the onset, symptoms and progression of diseases, as well as in drugs' adherence or access to healthcare services. A gender approach in the development of health care indicators, such as process and outcome indicators, is essential, in order to appropriately measure gender differences.

INVITED SPEAKERS

Inflammaging and Gender

Claudio Franceschi
Alma Mater Studiorum University of Bologna, Italy
Lobachevsky State University of Nizhny Novgorod, Russia

At a recent symposium on aging biology a marked disagreement on the most fundamental questions in the field emerged, and little consensus on anything other than the heterogeneous nature of aging processes. In this very complex scenario two major points/commonalities emerge, paying particular attention to the widely documented sex gap in human health and longevity, particularly evident in centenarians: 1. A major (maybe universal?) characteristic of aging is its overwhelming HETEROGENEITY at all levels of possible investigation, from populations to single cells, including men and women. In H. sapiens, owing to his unique combination of biology and culture, a major consequence of such heterogeneity is the progressive divergence between "chronological" and "BIOLOGICAL" AGE. Indeed, people of the same chronological age can be "younger" or "older" regarding a large number of different features, including biological clocks like the whole genome changes in methylation of CpG sites, but also other clocks related to physical activity, cognition and facial perceived age, among others. Even

in young individuals the different organs and systems of the body appears to be a mosaic of different clocks, as suggested by data on the gut microbiome composition, and by the different aging rates of liver, kidney, immune and metabolic system that we found by measuring a total of 402 features in 4,066 individuals aged between 20 and 45 years of age. 2. In 2000 I suggested to term "Inflammaging" a chronic, low-grade inflammation which increases with age and is a highly significant risk factor for a large variety of age-related diseases and geriatric syndromes (all sharing an inflammatory component). We recently described A new inflammatory clock of aging (iAge) able to track multimorbidity, immunosenescence, frailty and cardiovascular aging, also associated with exceptional longevity in centenarians. Even if the data are still scanty, I will illustrate a variety of age-related pathologies where inflammaging differences in men and women are emerging.

INVITED SPEAKERS

Heart-brain interactions in cardiovascular diseases: why sex and gender matter

Catherine Gebhard
University Hospital Bern, Switzerland

Cardiovascular disease and brain disorders, such as depression and cognitive dysfunction, are highly prevalent conditions and are among the leading causes limiting patient's quality of life. A growing body of evidence has shown an intimate crosstalk between the heart and the brain, resulting from a complex network of several physiological and neurohumoral circuits. From a pathophysiological perspective, both organs share common risk factors, such as hypertension, diabetes, smoking or dyslipidaemia, and are similarly affected by systemic inflammation, atherosclerosis, and dysfunction of the neuroendocrine system. In addition, there is an increasing awareness that physiological interactions between the two organs play important roles in potentiating disease and that sex- and gender-related differences modify those interactions between the heart and the brain over the entire lifespan. In this lecture, contemporary evidence of the effect of sex on heart-brain interactions and how these influence pathogenesis, clinical manifestation, and treatment responses of specific heart and brain diseases will be presented.

INVITED SPEAKERS

An Italian study on antimicrobial resistance and gender

Fabrizio Gemmi
Regional Health Agency of Tuscany, Italy

The topic of our speech is relative to the following question: are women and men exposed differently to infections caused by antibiotic-resistant germs?
Reformulating the question is necessary to clarify the subject of the study, because:

1. the acquired resistance to antibiotics is a characteristic of bacteria, not of people;
2. women and men are exposed to the risk of antibiotic resistant infections in different ways in the course of life;
3. exposure to antibiotics is a gender-related phenomenon: women between the ages of 14 and 65 make more use of them, while men exceed them from the age of 65.

This is without considering the different characteristics of the microbiota in men and women.
The study that we are about to begin, involving a geographical sample representative of the different Italian hospital care realities, intends to clarify whether gender is, in itself, a variable that conditions the risk of infections from resistant microorganisms.
The data that will be used for the purposes of this study will have to be fully available to all related centers, in anonymized form, with characteristics to allow cross linkage operations: microbiological isolates with single profile of antibiotic resistance and hospital discharge forms.
The hospital discharge form is the suitable information tool, sufficient for such analysis, at first watching to infectious events during an hospitalization, as it allows to take into account, in addition to age (at the time of the infectious episode) and the sex of the patient, the cause of hospitalization, the main co-pathologies, the hospital length of stay, the surgical procedures and the outcome at discharge.
Furthermore, at first, the study should look for the resistance characteristics related to a relatively homogeneous type of diseases, referring to invasive Enterobacteriales infections, with the possibility, once the analysis algorithms have been validated, to extend the study to other pathological conditions, such as Pseudomonas and Acinetobacter sepsis, and those caused by MRSA: for each of these conditions it is possible to imagine a different exposure for women and men to a multidrug-resistant pathogenic noxa, to be verified through the proposed study.
However, it is necessary to keep in mind the two major difficulties in carrying out the study. The first is of a legal nature, considering the intrinsic difficulties of data protection of this study. The second is represented by the effective availability of good quality data with the possibility of cross linkage from various institutions on the national territory.

INVITED SPEAKERS

New monoclonal antibodies for migraine

Pierangelo Geppetti
Department of Health Sciences, University of Florence Headache Center, Azienda Ospedaliero-Universitaria Careggi, Florence, Italy

Migraine, a high prevalence disease (15% of the world general population) that mostly (70%) affects women, is characterized by episodes of pulsating moderate/severe headache, that is particularly severe during the menstrual cycle. About 10% of migraine patients suffer of

chronic migraine (> 15 days with migraine or headache per month). Cluster headache (CH) is a rarer condition (0.4% of the general population) and is more frequent in male (3/4 of the entire patient population). CH patients report daily short and severe attacks for a period of 1-3 months followed by prolonged interictal periods. The two diseases share some peculiar clinical and therapeutic features. Not infrequently, symptoms overlap between the two conditions. Sumatriptan, an agonist of the serotonin 5-HT1B/D receptor, provides a beneficial effect in the acute treatment of CH and migraine attacks. Importantly, monoclonal antibodies against the sensory neuropeptide, calcitonin gene related peptide (CGRP) (anti-CGRP mAbs), have shown in both clinical trials and in real life studies remarkable efficacy and safety profiles for the prophylaxis of episodic and chronic migraine. One of these anti-CGRP mAbs has been approved in the USA (not in the European Union) as preventative medication of episodic CH. Additional anti-CGRP mAbs are being tested in CH and results will come soon. Thus, migraine and CH represent two distinct clinical entities with a remarkable and opposite gender difference. However, the two diseases share a number of common symptoms and are efficiently treated by the same acute drugs and prophylactic medications. Sex hormones have been claimed to play a major role in directing the two diseases toward a female or male phenotype and the consequent opposing prevalence in the two genders. However, the precise mechanism of sex hormones, and estrogens in particular, in migraine worsening, and the implication of additional hormonal and non-hormonal cofactors remain unknown.

INVITED SPEAKERS

Fetal programming: a clinician's perspective

Marek Glezerman
Tel Aviv University and Rabin Medical Center, Israel

At the moment of birth, the most important time span in our life, during which homeostatic set- points and trajectories for future health and disease are determined is already behind us. Even before conception oocytes and sperm cells are exposed to exogenous and endogenous environmental influences which affect long term developmental trajectories of the individual. Subsequently, during embryo implantation and throughout pregnancy, the intrauterine environment is deeply involved in fetal development by genetic and epigenetics mechanisms which create dimorphous hormonal milieus for the growing female and male fetus. Whatever affects the pregnant mother may affect her growing fetus and this includes nutrition, habits, environmental toxins, medications and stress. The science of the "Antenatal Origins of Health and Disease", known as " Fetal Programming" is concerned with these impacts on the developing fetus. It is now largely acknowledged that before delivery epigenetic processes in the embryo and fetus modulate homeostatic set-points and set the stage for the future development of health and disease. The largely overlooked paternal part in this complex epigenetic activity deserves additional attention. Understanding the concept of fetal programming means to understand that the care of a fetus needs to start even before its creation and include both of its future parents.

INVITED SPEAKERS

Importance of gender factor in disease modelling with Artificial Neural networks

Enzo Grossi
Bracco Foundation, Milan, Italy

Background: Artificial neural networks (ANNs) are information processing paradigms inspired by the analytical processes of the human brain. Such systems can modify their internal operating structure and, therefore, the resulting analysis in relation to a defined goal, question or function objective. They learn to recognize the complex patterns existing between the input signals and the corresponding outputs. ANNs are particularly suited for solving problems of the non-linear type and to analyze complex datasets. The mathematical structure of ANNs makes them able to simultaneously handle a very high number of variables collected in clinical field notwithstanding the underlying non-linearity. This represents a tremendous advantage in comparison with classical statistics models. Being universal approximators, ANNs when applied to multiple variables can very easily actually approximate the global information available during the training phase. This is the strength, but unfortunately, also the weakness of ANNs. In fact, almost inevitably, several variables which do not contain specific information pertinent to the problem are processed in the training phase. These variables, inserted in the model, act as a sort of 'white noise' which can interfere with the network's generalization ability in the testing phase reducing the external validity and, consequently, the overall accuracy.
Methods: Our group in the last twenty years has applied systematically automatic procedures able to reduce redundant information from a data set by eliminating variables not providing an added value for the solution of the clinical problem under study. For example, an Input selection system based on the evolutionary algorithm GenD, proved to be able in evaluate the relevance of the different variables of the available dataset in an intelligent way. Through the Feature Selection technique of the GenD evolutionary algorithm, the different "hypotheses" of variable selection, generated by each ANNs, change over time, generation after generation. When the evolutionary algorithm no longer improves, the process stops, and the best hypothesis of the input variables is selected and employed on the testing subset.
Results: Examining retrospectively 20 data sets containing gender as one of the descriptive variables, it was possible to verify how many times our AI protocol decided to keep gender in the predictive model. The data sets pertained a vast array of diseases like dyspeptic syndrome, atrophic gastritis, venous thrombosis, GERD, irritable bowel syndrome, Alzheimer

diseases and Mild cognitive impairment, Myocardial infarction, Gastrointestinal bleeding, Gastric cancer, Hypercortisolism, AIDS, Covid diagnosis, ECMO in intensive therapy among others. The sample size of these data set ranged between 80 and 8552(average 887). The number of variables ranged from 19 to 101 (average 44). Gender resulted to be part of the heuristic predictive model 18 out of 20 times. This means that also for highly adaptive and potent tools like ANNs, the information of gender carries a specific value.
Conclusions: The result of this study confirms the importance of gender information in building high performance predictive model in the field of AI. Therefore, also for Artificial Intelligence gender counts. During the training phase the input relevance of each variable was assessed. The so called "input relevance" is a parameter expressing the magnitude of the activation of a given node during the training phase. The magnitude of the activation is arbitrarily expressed with a number
which ranges from zero to infinity. In technical terms, the "Input Relevance" is the Fan-out of every input when the ANN is trained.

INVITED SPEAKERS

How can digital Medicine level disparities?

Florenzo Iannone
Azienda Ospedaliero-Universitaria, Policlinico di Bari, Italy

Genetic, epigenetic, hormonal, and environmental factors contribute to differences in immune response between the sexes and women, in general, have stronger innate and adaptive immune responses than men. The stronger immune response in women favours the elimination of pathogenic organisms but, at the same time, can cause autoimmune diseases. These are more frequent in women than in men and differences between the two sexes exist in symptoms, disease course and response to therapy. For these reasons, immune-mediated diseases offer important features as 'pathfinders' for EX-Health questions.
Women of childbearing age with immune-mediated chronic diseases are a good example: the life stages including pregnancy and breastfeeding need to be appropriately evaluated during pharmacological, pre-clinical, and clinical research so that gender differences can be identified, starting with those between men and women. The care pathway should always provide for the woman with a chronic condition to be followed by a multidisciplinary team during pregnancy, puerperium and breastfeeding, preferably through electronic medical records. When this is hardly feasible in the presence, e.g. for reasons related to the geographical area of residence, telemedicine may offer a solution.
There is a strong need to obtain high-quality information on the use of drugs in pregnancy and to disseminate their appropriateness and safety features. The ethical dimension is profound, but working in a gender-specific sense today will allow, tomorrow, in which all the different medical disciplines are gender-driven. Examples of best practice will be presented and discussed.

INVITED SPEAKERS

Obesity management/bariatric surgery: sex and gender differences

Alexandra Kautzky-Willer
Department of Internal Medicine III, Division of Endocrinology and Metabolism, Medical University Vienna, Vienna, Austria

The alarming rise of obesity and associated complications go along with mounting evidence of clinically important sex and gender differences. One's sex is a fundamental biological factor, which plays a key role in body fat distribution and regulation of glucose, lipid and energy homeostasis. Severity of injury differs in a sex-specific way regarding various comorbidities, especially reproduction, sexuality, cardiovascular, metabolic and malignant diseases, as well as cognitive and psychiatric disorders. Genetic effects, epigenetic mechanisms and lifestyle affect risk and complications differently in men and women. Furthermore, sex hormones and endocrine imbalances have a great impact on energy metabolism, vascular system and inflammation. Androgen excess relates to greater risk of obesity and associated complications in women, while testosterone deficiency is associated with higher body weight and cardiometabolic risk in men. Women represent the majority of participants in clinical studies aiming for weight reduction. There is also a clear predominance of female patients interested in bariatric surgery. This fact may be ascribed to greater stigmatization of obese women and related psychosocial problems. In men, interest in weight loss interventions usually associates with emergence of physical obesity-related problems. Men show higher rates of serious complications and lower survival rates post surgery. Diabetes was more common in men and malignant diseases more frequent in deceased patients with a history of bariatric surgery.
Obesity itself is associated with decreased fertility and, in case of conception, with higher rates of malformations, stillbirths and macrosomia among other perinatal complications. Therefore, better knowledge on the management of reproduction-related demands and problems of obese women, including management of pregnancies after bariatric surgery, is mandatory. Both beneficial effects, such as lower rates of preeclampsia or gestational diabetes, and negative consequences of weight-loss surgery - especially gastric bypass - including a higher risk of intrauterine growth restriction, preterm delivery and internal herniation, were described. Some of these problems appear to relate to impaired maternal nutrient uptake, especially following malabsorptive techniques. Furthermore, safe contraception is recommended after bariatric surgery.
Taking into account sex-dimorphic pathophysiological mechanisms of obesity and its complications as well as gender-related risk factors could contribute to more personalized care in the future.

INVITED SPEAKERS

Sex and gender differences in infectious diseases

Sabra L. Klein
Microbiology and Immunology, The Johns Hopkins Bloomberg School of Public Health, Baltimore, USA

The ongoing COVID-19 pandemic has increased awareness about sex-specific differences in immunity and outcomes following respiratory virus infections. Strong evidence of a male bias in COVID-19 disease severity will be presented based on clinical data and preclinical animals models, which illustrate sex differential immune responses against SARS-CoV-2. Prior to the pandemic, data from other viral infections, including influenza viruses, showed profound sex differences in virus-specific immunity, including locally in the respiratory tract. We have used influenza A viruses to interrogate sex-specific immunity to infection and vaccination. Although males are more susceptible to most viral infections, females possess immunological features that contribute to greater vulnerability to immune-mediated pathology but also better protection following vaccination. Both sex chromosome complement and related X-linked genes (e.g., TLR7) as well as sex steroids, including estrogens and androgens, play important roles in mediating the development of sex differences in immunity to respiratory viral infections and vaccination.

INVITED SPEAKERS

How an inclusive analysis contributes to health for all

Ineke Klinge
Dutch Society for Gender & Health, The Netherlands

Now that the relevance of sex and gender analysis for research and innovation has become firmly established, it is now up to science policy makers to take their part in securing the integration of the gender dimension in research and innovation.
Since 2000 the European Commission has been a pioneer in Europe in issuing polices in this respect and in facilitating the research community by financing Experts Groups (Gendered Innovations 1 and 2) to produce innovative methods and case studies for all domains of science and innovation. Similar policies have been issued by the Canadian Institutes for Health Research in 2010 and by the NIH in 2016 and a comparative global review of policies of major science funding policies has been recently produced.
Already in the 2001 EU Gender Impact Assessment Study for the life sciences, awareness was raised to not consider sex and gender in isolation. Ethnicity, age, socioeconomic status, sexual orientation, geographic location, disabilities, etc. can be relevant forms of discrimination too. It is a big step forward that the latest Policy Review by Gendered Innovations 2 (2020) is titled: How inclusive analysis contributes to research and innovation.
Integrating sex, gender and intersectional analysis is now considered to:

- added value of research in terms of excellence, creativity and business opportunities
- an in-depth understanding of all people's needs, behaviours and attitudes
- goods and services better suited to the needs of all people
- enhanced societal relevance of R&I

The lecture will describe this 20-years development and showcase the new methodologies and case studies.

INVITED SPEAKERS

Considering sexual orientation and gender identity (SOGI) in everyday clinical practice

Nikola Komlenac
Institute of Diversity in Medicine, Medical University of Innsbruck, Innsbruck, Austria

Heteronormativity is the assumption or belief that there are two genders (i.e., women and men whose categorical difference is believed to be biologically determined) and that all people are sexually attracted to other people with a different gender. People who cannot fulfill standards and expectations based on heteronormativity (i.e., sexual and gender minorities; SGMs) often experience minority stress. Minority stress is a unique source of stress that results from being stigmatized, rejected, or from having negative interactions with others because of not fulfilling heteronormative expectations. SGMs can also experience minority stress because of the fear of being stigmatized or rejected by others. Additionally, people who do not conform to heteronormativity can internalize negative attitudes toward non-heteronormativity and apply negative attitudes to themselves. The experience of minority stress and attempts to cope with experienced minority stress can lead to negative physical and mental health outcomes. In the current presentation negative health consequences of minority stress will be explained. Additionally, sources of minority stress in everyday clinical practice (and beyond) and how to avoid causing or how to help with minority stress will be discussed. Recommendations for increasing SGM affirming practice or for increasing medical practitioners' SGMs cultural competence will be presented.

INVITED SPEAKERS

The future of gender-specific medicine worldwide

Marianne J. Legato
Foundation for Gender-Specific Medicine Emerita Professor of Clinical Medicine, Columbia University College of Physicians & Surgeons, USA

The earth and our care of the life forms on it face critical challenges as we prepare to enter the second quarter of the 21st century. We greeted the delineation of DNA in 2000 with enormous enthusiasm for a vastly increased understanding of human biology. Inevitably, we developed the ability to improve health and longevity by defining and when indicated, modifying personal genomics by dazzling new techniques of gene editing (CRISPR) and/or modification of gene expression by epigenetic manipulation. We anticipated great advances in personalized medicine but the prediction that gender would no longer be relevant to our assessment of individual health turned out to be wrong; in fact, the modification of gene expression by biological sex/gender is ever more evident as research progresses. Other significant insights we have achieved include the fact that the individual human's personal experience and environment moderate that individual physiology in real time. Thus, the historic and artificial separation between scientists who study the molecular biology of sex and students of the impact of social, cultural, and economic experience on human physiology has been erased: the two are inextricably intertwined. Moreover, it is now established that the physiologic consequences of environmental factors can be transmitted to future progeny in a sex-specific manner. Another harvest of this period has been tremendous insights into human physiology by the exponentially expanding studies of the sexually dimorphic impact of space travel and of extraterrestrial colonization on human biology.

The present moment reminds us that humans continue to develop astonishing and previously almost unimaginable scientific and technologic advances that improve life on earth. But we have also developed forces that threaten to destroy us. We are experiencing global political unrest severe enough to provoke war and genocide, climate change of our own making that have produced an unprecedented series of natural disasters, and pandemics that imperil the entire world's population. All these affect humans in sex-specific ways: the universal decline in male fertility, the profound, lasting and transgenerational consequences of malnutrition and of harsh, unforgiving environments on human health, the impact of pandemic illness which even if survived can produce impaired, prolonged disability, to name only a few. Gender-specific medicine is certain to achieve real solutions to mitigate some of these challenges, but neither our future nor the degree of success we will realize is certain. If there is any meaning to human suffering, it is that our efforts to relieve it invariably produce new, ever more detailed and accurate insights into the nature of what it means to be human. These in turn foster interventions that mitigate our vulnerability to disease and premature death. What is certain, then, is that gender-based medicine will continue to improve the human condition and produce new ways to mitigate and help vanquish some of the catastrophes we now face.

INVITED SPEAKERS

The complex role of estrogens in the innate immune response

Adriana Maggi, Alessandro Villa, Elisabetta Vegeto
University of Milan, Milan, Italy

It is now well accepted that gender has a role in the modulation of inflammation and that sex steroids modify the inflammatory response. Our lab has been long interested in the role played by estrogens in the mechanistic control of the immune response and sex steroid relevance in the progression of disorders with a strong inflammatory component (e.g. including atherosclerosis, neurological disorders, rheumatoid arthritis, metabolic diseases).

Estrogens act on gene transcription via intracellular (ERα and ERβ) as well as membrane (GPER30) receptors. In macrophagic cells, we have shown that estradiol (E2) accelerates the intracellular inflammatory process induced by specific stimuli (e.g. LPS) and facilitates the progression of the inflammatory response toward the IL10-dependent "acquired deactivation" phenotype which is responsible for tissue remodeling and the restoration of homeostatic conditions. This complex action is exerted through an interplay between GPER and ERα receptors that regulates the SOCS3 and STAT3 signaling pathways (1). This hormonal activity has a role in mitigating the effects of inflammation in several inflammatory diseases associated with ageing (2). However, more recently, by studying sex differences in microglia - the brain's resident immune cells -, we have demonstrated that the transcriptional activity of adult microglia is significantly different in male and female rodent brain and such a difference is observed also in gonadectomized animals or in cells grown in cultural media deprived of sex steroids. In addition, in pathologic conditions like stroke the immune reactivity of female microglia differs among sexes possibly providing and explanation to the female specific response to ischemic insults (3). Most relevant, is that transplantation of female microglia into male brain provides males with the protection towards ischemic damages typical of the opposite sex. In my presentation, I will summarize the current status of knowledge on the sex-dependent functions of microglia and report recent evidence linking these cells to the sexual bias in the susceptibility to neurological brain diseases.

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Artificial Intelligence in medicine: an overview

Nasr Makni
Bracco Suisse SA, Cadempino, Switzerland

Artificial Intelligence (AI) is playing a growing role in medicine and health care, with a wide range of applications ranging from automating tedious but simple tasks to complex decision making. AI is today used to transcript dictated reports, triage of emergency patients, establish diagnosis from images, enhance the quality/cost ratio of image reconstruction, optimize OR flow, and it is even available on wearable objects for prevention and wellness. Now one could ask: "Where is the magic? Who is legally responsible of AI-augmented medical acts? How can we know that it can be reliable? Are we ready to accept an AI, a machine, making medical errors? Where do the regulations stand for AI Software As Medical Device (SAMD)? A lot of questions have been and continue to be raised, legitimately.
Ethics and governance of AI need to be more than a topic for round tables and discussions as it is time to make it a formal and regulated part of the process of developing AI solutions from design to deployment. Inherent biases and inequalities in mining data and feeding it to learning algorithms may otherwise continue to cause an exclusion of countries, regions and even (gender, culture, religion) minorities in rich countries. The World Health Organization had issued a guidance document that provides recommendations covering all the aspects related to AI ethics and governance and targeting all kinds of players (private and public). These recommendations, if transformed into regulations and laws, could significantly empower equal and ethical AI.
The learning and adaptation capabilities of AI are technically established and can be considered among its strongest assets. While learning is the capture of hidden parameters from feedback of experience and knowledge, adaptation on the other hand is the ability to improve this learning using new experiments. One may call adaptation "continuous learning" with a tempting analogy to the learning process of human beings, including highly skilled medical experts. The current regulations of SAMDs, including those that use AI, are not ready to define precise rules for continuously learning AI systems and solutions. It is the role of regulation authorities to establish a suitable legal framework for AI-enabled SAMDs to guarantee both safety and benefits to patients and medical practice. As an example, the Food and Drugs administration is orchestrating a discussion on the Good Machine Learning Practices and the continuous learning systems. They have been publishing regular updates of the discussion paper, but no final guidelines have been defined yet.

Influence of sex on the transcriptome of pheripheral blood neutrophils in COPD patients

Barbara Mariotti[1]
Department of Medicine, Division of General Pathology, University of Verona, Verona, Italy

Chronic obstructive pulmonary disease (COPD) is an inflammatory disease of the lung characterized by airway obstruction and destruction of the parenchyma, leading to a progressive and irreversible decline in lung function. Although the primary site of disease is the lung, COPD is recognized as a systemic inflammatory disorder.
Among the different markers of disease severity, the neutrophil-to-lymphocyte ratio has been reported to be significantly elevated in acute as well as in stable COPD patients. In this context, we have recently shown that sex plays a role in driving changes in the absolute number and differential counts of discrete circulating leukocyte types. Particularly, male, but not female, COPD patients are characterized by a significant neutrophilia. Most importantly, we showed that sex may affect the dynamic of these modifications at different stages: a pro-inflammatory profile characterized by an increase in circulating neutrophils is an early hallmark of COPD in males and remains stable from GOLD stage 1 to 4. By contrast, an increased granulocyte count (mostly eosinophils and basophils) was detected only at more severe stages of the disease in females.
On these bases, we aimed at characterizing the impact of sex on the phenotypic and functional profiles of circulating neutrophils in COPD patients.
RNA-seq analysis of neutrophils purified from a pilot cohort of COPD patients (3 male and 6 female) and age- and sex-matched controls was performed. Differential gene expression (DEG) analysis identifies 232 and 504 genes as differentially expressed in COPD as compared to control donors in male and female, respectively. GO-term enrichment analysis of DEGs emphasized that both male and female are characterized by dysregulation of processes associated to GTPase activity. However, gene set variation analysis revealed that male and female COPD have opposite variability of GO-terms associated to GTPase activity as compared to control donors. Finally, while in male COPD alteration of GTPase signaling is the only process significantly enriched, in female COPD an enrichment in several processes associated to leukocyte activation and response to cytokines was observed.
Overall, our data indicate for the first time that a sex-specific reprogramming occurs in neutrophils from COPD patients.

INVITED SPEAKERS

Drugs, bugs, infections and antimicrobial resistance

Teresita Mazzei[1], Giorgio Tulli[2]
[1]Senior Full Professor of Pharmacology, University of Florence, Italy, [2]Former Director of Florence Health Care Trust ICUs Department, Florence, Italy

Women are more likely to receive an antibiotic prescription in their lifetime compared to men.
The well-known Schröder et al (2016) meta-analysis shows that women in the 16 to 54 years age group receive a significantly higher number of prescriptions of cephalosporins and macrolides in primary care than men do (J Antimicrob Chemother 2016; 71: 1800–1806). Prospective studies are needed to address reasons for gender inequality in prescription and to determine whether a difference in adverse events, including resistance development, also occurs. This disproportionate possible burden of antimicrobial resistance (AMR) on women could be due to both demand and supply-side factors. Some demand-side factors which increase women's vulnerability to AMR are biological factors, women's nature and type of employment, excessive home-based care work, and limited access to healthcare (at least in some countries). On the supply-side, gender differences in antibiotic prescription by doctors due to lack of training and gender-bias increase women's antibiotic usage (AMU). Doctor and patient gender can impact the physician–patient interaction and its outcomes. There are some practice implications: the development of appropriate strategies for the implementation of knowledge about physician and patient gender differences will be crucial for the delivery of high-quality gender sensitive healthcare (Bertakis et al Patient Education and Counseling 76 (2009) 356–360). In the Eggermont et al study (BMC Family Practice (2018) 19:17), female GPs prescribed antibiotics less often than male GPs, especially in consultation with female patients. This study shows that, in spite of clinical guidelines, gender interaction may influence the prescription of antibiotics with sore throat symptoms. These issues are further compounded in Low and Medium Income Countries (LMICs) due to stringent socio-cultural norms, women's low levels of education, low participation in the workforce, and limited health information/networks. Despite this obvious interconnectedness of AMR and gender, it surprisingly remains unexplored in the current literature. The interaction of biology and socio-cultural norms makes women more susceptible to AMR. Women's exposure to AMR and Antibiotic Usage is higher during pregnancy, childbirth, menstruation, and abortion. In addition, young women face a greater risk of contracting Urinary Tract Infections (UTIs), gonorrhea, and other diseases. Lack of adequate Water, Sanitation, and Hygiene (WASH) facilities puts women at higher risk of contracting antibiotic-resistant infections in LMICs. Women's health and treatment-seeking behaviour may be compromised due to a lack of knowledge, networks, economic resources, and decision-making within a household. Women's lack of decision-making about their own health and less bargaining power at home further limits their access to healthcare. Restricted mobility of women due to patriarchal norms and the resulting lack of consultation with healthcare providers also makes them prone to inappropriate AMU. Existing adverse gender norms and preferences for boys over girls lead families to prioritize health care and treatment for male children.
Women's nature of paid and unpaid work increases their vulnerability to AMR. Women are usually the primary caregivers in households, which increases their exposure to AMR due to their involvement in cooking, animal care, and child and elderly care work. Even within paid work, women tend to be involved in health and education sectors or low-paid farm work. Women also contribute to 67% of the frontline healthcare workforce, which puts them at a higher risk of exposure to AMR due to the nature of their work. At agricultural and animal husbandry sites, women are more involved in performing menial tasks, which may result in higher exposure to animals carrying resistant bacteria. While steps towards tackling AMR in terms of creating awareness, advocacy, and regulation have been initiated, the lived experiences of women remain unaddressed. Research on interactions between AMR and women's health and livelihoods will be a crucial next step.

INVITED SPEAKERS

Toward gender-transformative social epidemiology: reflexions on the conceptualisation and operationalisation of gender in quantitative studies

Céline Miani
Bielefeld University, Germany

The relevance of gender as a social determinant of health and its role in the production of health inequalities is now broadly acknowledged. However, it remains challenging to capture the many dimensions of gender in quantitative studies, and to integrate theories and concepts which often stem from disciplines outside of epidemiology. Taking examples from a scoping review looking at how gender is measured in social quantitative epidemiology, I discuss how epidemiological research could nevertheless be gender-transformative, and what are the opportunities for moving research from gender-sensitive terrain to gender-transformative action. Beyond the acknowledgement of gender differences in gender-sensitive approaches, scholars have indeed been calling for years for gender-transformative research, which, in line with intersectional approaches seeking social change, aims to challenge existing gender norms and power structures that create and maintain gender inequalities. In terms of measurement and in the field of social epidemiology, gender-transformative research could mean a better understanding and integration of social inequalities in instrument design, allowing to capture discriminatory practices and power dynamics, a focus on the views and lived experiences of marginalised groups (e.g. women, or gender diverse people), or

surveying groups on topics they've been excluded from so far (e.g. research on masculinities and reproductive health). Gender-transformative epidemiological research would also be "gender expansive", i.e. promoting gender diversity and inclusivity and challenging the traditional normative dichotomy opposing men and women, the masculine and feminine. I conclude, inspired by the anti-feminist bias and feminist epidemiology paradigm of Inhorn and Whittle (2001), that gender-transformative epidemiological research should be a multi-faceted endeavour, building bridges from theory development to community engagement, and from individual-level approaches to relational and structural perspectives.

INVITED SPEAKERS

Impact of sex and gender on the efficacy and toxicity of drug treatment in colorectal cancer

Enrico Mini, Ida Landini, Stefania Nobili
Section of Clinical Pharmacology and Oncology Department of Health Sciences (UniFI), Florence University, Italy

The role of sex and gender as modifiers of disease biology and treatment outcomes is an interesting recognized issue in oncology. Sex-specific biological mechanisms have an influence on several hallmarks of cancer, including metabolism, growth regolation, angiogenesis and immunosurveillance, which contribute to cancer risk and prognosis. The biology of cancer is not the same among different tissues and histological types or even within single histological subtypes. Thus, the interactions between sex, gender and cancer mechanisms cannot be expected to be constant overall. Colorectal cancer (CRC) represents the second leading cause of cancer-related death. Women have a lower overall incidence of CRC than men. An overall survival advantage of females compared to male CRC patients, which is not explained by any substantial differences in extent of disease or treatment delivered, has also been reported. However, women have a higher incidence of right-sided colon cancers, which have the worst outcome. Moreover, a higher percentage of tumors with a consensus molecular subtype-1 (MSI immune) is found in women and their risk of developing peritoneal carcinomatosis is also higher then in men. Overall these patterns are probably the consequence of genetic programming of cells according to sex, and of the effects of sex hormones interacting with gender-specific behaviours.
In addition, a statistically significant and clinically relevant higher toxicity of chemotherapy in women has been observed in the treatment of CRC both in the adjuvant and in the metastatic setting. Primary treatment regimens are based on fluoropyrimidines, and include other relevant drugs such as oxaliplatin or irinotecan. Preliminary data also show that females are more likely to experience serious adverse events when treated with regorafenib as subsequent therapy for refractory disease. These data warrant confirmation in large independent series.
In particular, in metastatic CRC a close relationship between plasma levels, toxicity, and efficacy following 5-fluorouracil (5-FU) therapy has been established. The higher clearance of 5-FU in men likely explains the higher toxicity of 5-FU in women. In fact, in a prospective study evaluating the contribution of genetic (DPYD single nucleotide polymorphisms) and non-genetic factors in 5-FU-related severe toxicity, female sex was found to be an independent risk factor for grade 3/4 5-FU toxicity along with genotype, mode of drug administration, and 5-FU biochemical modulation by folinic acid.
Altogether, these observations suggest that sex and gender differences in CRC epidemiology, biology, and treatment outcomes warrant further research and interventions to stratify and ultimately facilitate prevention, diagnosis and drug treatment approaches according to sex.

INVITED SPEAKERS

Heart failure: gender difference

Elisa Lodi, Maria Grazia Modena
Centro PASCIA, Azienda Ospedaliera Universitaria Policlinico Modena, Università degli Studi di Modena e Reggio Emilia, Italy

Heart failure (HF) is the leading cause of hospitalization, having recently exceeded that of natural childbirth. It represents a true pandemic, with a prevalence of 2% in the general population and 10% over 70 years of age. In advanced stages, HF is burdened by a high number of hospitalizations, avoidable in ¾ of cases and by a poorly perceived prognosis, worse than many cancers. In the collective imagination the idea that "dying from heart" is a desirable final fatal event, but it is not known that an increasing number of patients, instead of succumbing to heart attacks, manage to survive for years, dealing with the chronicization of illness, studded with crises and related hospitalizations. This is the result of the overall improvement in medical and surgical therapies, and in devices that support patients' hearts for longer and longer. The management of the HF hospitalization is unsustainable, both in terms of resources (it represents 1-2% of healthcare expenditure), and as an impact on the quality of life. It has been observed that the prognosis worsens after every hospitalization. 4-5% of patients do not survive to the first episode and 1-year mortality is 30%. Among the various strategies aimed at reducing hospitalization rates for HF, the improvement of therapeutic adherence is of primary importance. To this end, it is more than ever necessary to strengthen the patient's home care and the continuity between hospital and territory. Telemedicine services can play a fundamental role in reorganizing the current health structure, especially for patients with HF. In fact, they offer the possibility of identifying any changes in the monitored parameters early, allowing for a timely correction of the same, thus intercepting and preventing possible clinical worsening. The mentioned benefits are even more evident in the light of the recent COVID-19 pandemic, which has also inexorably affected healthcare,

and has established a "new normal" made up of limiting interpersonal interactions and social distancing, where medical tools that can allow a better home care.
For two years our Center, an outpatients Clinic for pts with chronic HF gender oriented, followed 120 pts in telecardiology, 55 women mean age 72 yrs. plus and 65 male pts mean age 68yrs. The prevalence of HF in women was HF preserved EF (80%), in men HF reduced EF (92%), our telecardiology system (Oyster ECG System) uses sensors capable of recording and transmitting the electrocardiogram, heart rate, respiratory rate, blood pressure, So2, temperature, weight with a special system that evaluates congestion. It is interesting to note that in both groups, despite the different etiology of HF and the different therapy, also in women there was a reduced re-hospitalization. Our interpretation is that tele-cardiology, associated with counseling, plays in HF a role of care giver for the woman, that she has always covered, not virtually, for the family. In particular, the reduction in hospitalization was reduced more in women, who notoriously have a preserved EF HF, where reducing congestion is more difficult, so the advantage of telemonitoring is particularly evident.

INVITED SPEAKERS

Why should digital medicine be an option? How should biological and non-biological indicators be selected?

Anna Maria Moretti
Ospedale Santa Maria GVM, Bari, Italy

The identification of appropriate indicators is the prerequisite for the objective assessment of the outcome of the intervention and the entire process, in terms of the use of economic and human resources, and of the improvement in access time or in specific outcomes (depending on the disease). Also, innovative solutions (as digital ones) should always be evaluated in terms of efficacy and safety through appropriate efficacy indicators.
Biological indicators: gender, age, ethnicity (particularly when communication or treatment option constraints follow) and, no less important, disease-specific markers and clinical outcomes appropriately defined by the multidisciplinary team
Non-biological indicators: context indicators of the geographical, cultural, and socio-economic status of the patient
Patient satisfaction: in general, and specific terms on the relationship with the physician/team. Patient feedback is essential with innovative/digital solutions
Indicators of healthcare planning, organisation (personnel, available facilities) and, hence, system adequacy
System indicators: related to the entire care and assistance process (as well as to the outcome of the specific intervention), also with regard to the facilitation/acceleration of the pathway
The revision of the DTCP from a gender perspective is urgently recommended, as is the contextual digitalisation of processes to support the physician in identifying the different gender-specific steps. This approach should be integrated into every stage of the DTCP: prevention, diagnosis, treatment, prognosis, and care. The inclusion of a gender medicine reference expert in the working group for the development of digitised DTCPs should be mandated. Gender-specific medicine is a strong tool for optimising pathways, especially for chronic pathologies, since the greatest economic expenditure occurs on chronic diseases that do not envisage defined phases of the pathway.
DTCPs digitisation offers the opportunity to provide for alert systems in the presence of risk factors or frailty (either gender-related or not) and the possibility of referring the patient directly (by booking the service).

INVITED SPEAKERS

The role of the gut microbiome in sex-differences in pain

Siobhain O'Mahony
University College, Cork, Ireland

The complex ecosystem that is the gastrointestinal microbiome (including bacteria, fungi, viruses, phage) plays essential roles in the maintenance of the healthy state of its host. This ecosystem is very much involved in the bi-directional communication between the central nervous system, termed the microbiome-gut-brain axis. A disruption to the development and balance of this axis including the microbiome has been implicated not only in gastrointestinal disease but also neurological disorders including pain. The influence of the gut microbiome is well documented in the context of visceral pain from the gastrointestinal tract; a greater understanding is emerging of the impact on somatic, inflammatory pain and neuropathic pain. These microorganisms in our gut produce metabolites, neurotransmitters, and neuromodulators which interact with their receptors to regulate peripheral and central sensitisation associated with pain. Risk factors for pain include anxiety, depression, and increased stress response which are often more represented in the female population. Our gut microbiome and our gonadal hormones are intricately linked with studies indicating that a differential microbiome exists between the sexes. Furthermore women often present with more pain related disease than men and pre-clinical studies show that male microbiome confers protection from inflammatory pain. Hence, it is possible that the composition of the microbiome, its by-products in conjunction with gonadal hormones contribute to the increased risk for the development of pain related disease.

INVITED SPEAKERS

In-practice policies to promote an inclusive health care for transgender people

Matteo Marconi, Maria Teresa Pagano, Angela Ruocco, Carmela Santangelo, Luciana Giordani, Paola Matarrese, Lucrezia Gambardella, Camilla Cittadini, Elena Ortona, Marina Pierdominici
Reference Center for Gender Medicine, Istituto Superiore di Sanità, Rome, Italy

Studies carried out across a variety of different contexts have shown that transgender people face significant barriers to accessing health care and health-determining resources, such as education, employment and housing. Harassment and discrimination contribute to high rates of stress and make transgender individuals significantly more likely to experience poor health outcomes. The scientific and institutional debate has highlighted some issues to be tackled for better well-being and health of transgender population. First, there is scarce information on the general status of transgender people's health. In fact, trans-sensitive health care is not only about accessing hormonal and/or surgical gender affirming pathway but it also includes prevention and screening programs, care for chronic conditions, etc. Second, many health care providers lack basic knowledge of the health experiences of transgender people. Third, the lack of independent, certified and up-to-date information, easily accessible to users, both in terms of health and legal rights, contributes to social exclusion mechanisms undermining the right to health for transgender people. Thus, it is urgently warranted to fill all these gaps to provide an effective and appropriate evidence-based prevention and care so as to ensure health equity for transgender people. In this regard, the Reference Center for Gender Medicine at the Italian National Institute of Health, thanks to a close network of collaborations, has been carrying out different projects on transgender well-being and health including research activity, training of health care providers, and communication to citizens. In particular, we recently conducted a study concerning health condition of transgender adults which highlighted the difficulty of accessing health services, in particular cancer screening, with the percentage of those who feel discriminated against because of their gender identity reaching almost 50%. This study also showed that lack of knowledge on transgender health and the use of inappropriate terminology by health care providers were reported by users as the main obstacles in accessing health services. Moreover, as shown by another survey we recently carried out, health care providers themselves underline the need for specific training on health aspects related to gender identity that is not currently part of the university curriculum. In this regard, our center is organizing CME courses, conferences, and is carrying out the publication of brochures and books on transgender issues dedicated to health care providers. Finally, a crucial aspect that we are dealing with is about informing citizens with the creation of Infotrans.it, the first institutional web site providing transgender population with health and legal information. Communication campaigns aimed on the one hand at making general population more aware of discrimination and on the other hand at making transgender people more informed about the importance of prevention for what concerns their health are also underway. All these activities could represent a first step towards a more inclusive health policy aimed at improving access to transgender health care.

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INVITED SPEAKERS

Why are rheumatic autoimmune diseases on the rise? The history of gender role

Leonardo Punzi
Rheumatology Network, Regione Veneto, Italy, Institute of The History of Rheumatology, Venice, Italy

Autoimmune diseases (AID) are a group of disorders characterized by damaging immune responses to self-antigens which are for the most part of unknown etiology. Number of epidemiological studies have demonstrated that AID affect about 3-5% of western population, in particular women, with a prevalence that continue to increase progressively. Since rheumatic AID (RAID) are the most frequent non organ specific AID, the careful observation of their characteristics may contribute to understand the possible origin and development of main AID. First of all, as the most common biomarker of autoimmunity are the antinuclear antibodies (ANA), their determination in the general population may be useful to establish the role of some relevant aspects, including demographic factors such as older age, female sex and parity, genetic factors, and various environmental exposures, including chemicals, infections, and medications [1]. Another relevant point which may be offered by studying RAID is the possible origin of these diseases, due to the possibility of recognizing them by means of literature, picture, sculpture and mainly, by palaeopathology. In this context, it is very important the observation that rheumatoid arthritis (RA), the most frequent non-organ specific AID was first described only in 1800 and attributable to the French physician Landré Beauvais, who reported the observation of nine cases, all females affected with a polyarthritis evolving in non-reducible deformations [2]. These patients were pales and skinny, coming from a poor milieu, in contrast with patients with gout who habitually are overweight and ruddy, and coming from upper class. He defined this disease "astenic gout", while the name of RA was introduced by the English Garrod in 1859. Thus, this observation is crucial because strongly suggest that AID, at least RAID, are recent diseases and, on the other hand, affirm the central role of the femal sex in the their pathogenesis. Among the various hypotheses able to explain this "explosion" of AID, one of the most convincing is the "genetic bottle-necks" [3]. Probably some genetic variants, including those associated with HLA-DRB1* loci, while conferring resistance toward infections, in

particular malaria, represented a predisposing factor for main AID (including RA, SLE, Sjogren s, Thyroiditis, type I diabetes). However, the genetic predisposition was not sufficient, because in the monozygotic twins the concordance is limited [4]. Thus other factors should be carefully considered, in particular those linked to environment and the stress. In this context, an increased body of evidences demonstrates that the female sex is the main target, even in young age [4].

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Gender differences in orthopedic surgery

Pietro Regazzoni
Emeritus University Hospital Basel, Switzerland

Gender bias has to be analyzed from different point of views:
1. Comparing numbers/careers of women and men in orthopedics
2. Comparing results of women and men as (orthopedic) surgeons
3. Comparing results of women and men with orthopedic problems

Not surprisingly, differences can be found in all three fields:

Ad 1: Stereotypes still limit women from entering male-dominated specialties, fortunately with a decreasing tendency, but with a still marked leadership gender gap.

Ad 2: Surgeon sex is associated with differential postoperative outcomes, though the mechanism remains unclear (Jama 2022).

Ad 3: structural anatomy differences, hormones and genetic factors partially explain the gap and must be considered to optimize care

Explanations are still difficult, as the reasons are multifactorial ranging from individual factors to elements of healthcare organization which are geographically very different.

Gender medicine and university teaching

Vera Regitz-Zagrosek
Universitätsmedizin Charité Berlin, Universität Zürich, Switzerland

Sex and Gender Medicine is a novel discipline that provides equitable medical care for society and improves outcomes for both male and female patients. The integration of sex- and gender-specific knowledge into medical curricula is limited due to adequate learning material, systematic teacher training and an innovative communication strategy.

We first developed a database "Gendermed.db" to assemble teaching contents and published it as a book in 2012: Sex and Gender Aspects in Clinical Medicine , Springer, ISBN: 978-0-85729-832-4. Based on these data, a modular, outcome-based, interdisciplinary curriculum was introduced for undergraduate medical education at At Charite Berlin, one of the largest European medical faculties. A key stated institutional goal was to systematically integrate sex and gender medicine and gender perspectives into the curriculum in order to foster adequate gender-related knowledge and skills for future doctors concerning the etiology, pathogenesis, clinical presentation, diagnosis, treatment, and research of diseases. With this approach, quantitatively sex and gender medicine-related content was widely integrated throughout all teaching and learning formats and from early basic science to later clinical modules (94 lectures, 33 seminars, and 16 practical courses). Gender perspectives involve 5% of the learning objectives and represent an integral part of the assessment program. Qualitatively, the relevance of gender (sociocultural) differences was combined with sex (biological) differences in disease manifestation throughout the curriculum.

Presently, a curriculum in gender medicine is being developed as part of the project "Sex and Gender Integration in the Swiss medical curriculum project", supported by a grant from swissuniversities. The aim of this document is to provide a reference for the teaching of sex and gender at Swiss universities, so that the process can be carried out in a coordinated manner in the different universities and institutions in Switzerland. The project is being realized through a collaboration between medical schools and one nursing school, in order to allow the integration of the sex and gender dimension in the most transversal way possible.

INVITED SPEAKERS

Opposite role of sex and gender in cardiovascular and ischemic diseases

Vera Regitz Zagrosek
Universitätsmedizin Charité Berlin, Universität Zürich, Switzerland

In this comprehensive review, we will highlight the most promising developments on how sex and gender (S&G) analysis contributes to advances in cardiovascular medicine. We will include the assessment of the sociocultural dimension gender as well as the contributions of S&G analysis to the rapidly evolving fields of nanomedicine and precision medicine. We will describe S&G-related cardiovascular phenotypes and emphasize how the consideration of S&G interaction improves diagnostic and therapeutic strategies in myocardial ischemia, hypertension, heart failure, myocarditis, stress-induced cardiomyopathy and cardiovascular aging.
Some differences in phenotypes can be explained by biological mechanisms, while others are due to gender. Accordingly, we will discuss progress in sex differences as well as determinants and impact of Gender on cardiovascular disease (CVD).
Women are less often treated for CVD risk factors than men, and their cardiovascular protection is incomplete. In addition, several cardiovascular drugs may exert different effects in women and men or require sex-specific dosing.
Progress in the field of nanomedicine is hampered by the neglection of sex-specific effects of nanoparticles on cells. Progress in precision medicine requires inclusion of S&G as potential biomarker predicting outcomes. A prominent knowledge gap relating to S&G in cardiovascular and precision medicine has to be filled urgently.

INVITED SPEAKERS

Sex chromosomes and disease

Karen Reue
David Geffen School of Medicine at UCLA, Los Angeles, USA

Women and men differ in the prevalence, course, and outcome of diseases including autoimmune disorders, Alzheimer disease, and cardiovascular disease. Women are also more likely to experience adverse effects from commonly prescribed drugs, such as statin drugs that are used worldwide to reduce risk for heart disease. Differences in disease susceptibility between males and females may be influenced by both chromosomal sex (XX and XY sex chromosomes) and gonadal sex (ovaries and testes). Evidence of a role for sex chromosome complement in disease is provided by individuals with XO or XXY genotypes, which exhibit increased prevalence of congenital heart defects (XO) or increased risk for visceral obesity and type 2 diabetes (XXY). Sex chromosomes influence traits very early during development, leading to differences in body composition (fat vs. lean mass) of human XX and XY fetuses as early as the first trimester. Preclinical mouse models have identified specific genes on the sex chromosomes that have differential expression levels between XX and XY individuals and influence disease traits. For example, sex chromosome genes that regulate chromatin structure influence gene expression throughout the genome and influence susceptibility to autoimmunity, cognitive decline, obesity, and adverse drug effects. A better understanding of the interaction between chromosomal sex and gonadal sex will provide the best means to promote health in individuals of all sex and genders.

INVITED SPEAKERS

Gender disparity and public health

Walter Ricciardi
Università Cattolica del Sacro Cuore, Rome, Italy

Gender-specific medicine has recently been considered as a fundamental and innovative aspect of health systems. In several Countries international and national Agencies and Institutions recommended an attention to sex and gender disparity in basic research, clinical studies and public heath settings in order to improve appropriateness of the cures. Unfortunately, this issue has actually been promoted and developed in few Countries so that the sex/gender-specific medical approach is still a matter limited to some developed and scientifically advanced regions. However, both health systems efficiency and structural sanitary systems features as well as (dis)equal access rights for women and men worldwide appear as critical.
Gender medicine, or rather Gender-specific Medicine, deals with the study of how sex-based biological and gender-based socioeconomic and cultural differences influence people's health, focusing on the interplay between physiological and social factors in health. It is nowadays well known that several pathological conditions including communicable and non-communicable diseases clearly display significant differences between women and men in terms of incidence, diagnosis, progression and response to therapy. In particular, sex-related differences in the epidemiology and natural history of diseases such as cardiovascular diseases, autoimmune conditions or cancer and in pharmacokinetics and pharmacodynamics are nowadays quite well recognized and acknowledged. In fact, the last few years have witnessed considerable progress in embracing the sex-specific (i.e. biological) differences in clinical practice as well as in health policy planning. However, also gender-specific (socio-cultural) differences can strongly impact occurrence of diseases and health outcomes influencing life expectancy and vulnerability to diseases, attitude towards risk behaviors and care-seeking, and health systems response, thus representing a critical determinant of health. The

interaction of gender with other determinants of health such as age, geographical location, socioeconomic status, work, ethnicity, religion, disability, sexual orientation and gender identity, discrimination, social marginalization has recently been placed in the spotlight by the 2030 Agenda for Sustainable Development by WHO (https://www.who.int/news-room/questions-and-answers/item/gender-and-health) raising the attention towards the urgency to address gender inequality and promote gender-sensitive and responsive policies in and beyond the health sector.

INVITED SPEAKERS

Sex-specific biomarkers of COVID

Maria Cristina Gagliardi, Simona Anticoli, Maria Teresa Pagano, Daniela Peruzzu, Katia Fecchi, Elisabetta Iessi, Paola Matarrese, Maria Dorrucci, Elena Ortona, Anna Ruggieri
Center for Gender Specific Medicine, Istituto Superiore di Sanità, Rome, Italy

Several biomarkers have been identified to predict the outcome of COVID-19 severity and response to vaccination, but few data are available regarding sex differences in their predictive role. Aim of these study was to identify: i) sex-specific biomarkers of severity and progression of acute respiratory distress syndrome (ARDS) in COVID-19 and ii) biological markers modulating the immune response to vaccination.

Sex-specific biomarkers of COVID-19 progression: Plasma levels of sex hormones (testosterone and 17β-estradiol), sex-hormone dependent circulating molecules (ACE2 and Angiotensin1-7), vitamin D (25(OH)D) and other known biomarkers for COVID-19 severity (ferritin, D-Dimer, neutrophil and lymphocyte counts) were measured in male and female COVID-19 patients at admission to hospital. The association of plasma biomarker levels with ARDS severity at admission and with the occurrence of respiratory deterioration during hospitalization was analysed aggregated and sex disaggregated form.

Our data show that some biomarkers could be predictive for both males and female patients and others only for one sex. Angiotensin1-7 plasma levels and neutrophil count predicted the outcome of ARDS only in females, whereas testosterone plasma levels and lymphocytes counts only in males.

Predictive biomarkers of ARDS progression in female patients	Predictive biomarkers of ARDS progression in male patients
↑ D-Dimer	↑ D-Dimer
↑ Ferritin	↑ Ferritin
↑ Neutophil count	↓ Lymohocyte count
↓ Ang1-7	↓ Testosterone

Sex differences in response to COVID-19 vaccination: We studied health care workers (HCW) population including 432 males and 638 females, vaccinated with two doses of BNT162 mRNA vaccine, working in two hospitals in Rome, Italy.

For all the individuals anti-S antibody levels were measured at three different time intervals: T2: 16 days post second dose of vaccine; T3:77 days post second vaccine; T4:154 days post second dose of vaccine. At T2 and T3 intervals female HCW showed anti-S antibody titers 1,7 (2948 BAU/ml) fold higher than males (1697 BAU/ml). 154 days after the second dose the anti-S antibody titers significantly decreased and reached similar levels both in male and female workers.

Analysis of biological markers affecting sex differences in anti-S response (estrogens, testosterone, vitamin D) indicated that testosterone levels positively correlated to anti-S titer only in males.

Conclusions: Sex is a biological variable affecting the choice of the correct biomarker that might predict worsening of COVID-19 to severe respiratory failure and response. Women humoral immune response to COVID-19 vaccine is higher than men. To note, testosterone might predict the success of vaccination in term of Anti-S titer in men.

INVITED SPEAKERS

Gender differences in diabetes and its complications

Anna Solini
School of Medicine, University of Pisa, Italy

Sex and gender largely influence epidemiology, clinical presentation and outcomes of type 1 (T1DM) and type 2 diabetes mellitus (T2DM). Worldwide, the prevalence of T2DM is increasing, especially in young subjects and in the female sex, likely due to the increased prevalence of obesity in females from low-income countries. Data obtained on large populations of T1DM and T2DM subjects also show sex/gender difference in the epidemiology of complications. Although the risk for cardiovascular disease (CVD) is higher in T2DM men than in women, when comparing T2DM vs nondiabetic subjects, the relative risk of developing CVD is much higher in women than in men. Many of these observations are largely attributable to biological (sex) differences in the impact of CVD risk factors, in the pathophysiology of vascular bed, and in clinical manifestations of CVD; it should be also pointed out as gender-related variables may play an important role in influencing prognosis, by causing delay in the diagnosis, undertreament of major CVD risk factors, modifying adherence to therapy and underuse of revascularization procedures in T2DM women, still misperceived as being at lower CVD risk than men.

Concerning microvascular complications, the observation of a prevailing non-albuminuric phenotype of chronic kidney disease, as well as of painful polyneuropathy in women, and the differences in the severity of NAFLD, has received robust support in the last fifteen years, also from Italian contribution.

A better knowledge of sex- and gender-related characteristics of complications of diabetes is required for a more precise patient phenotypization, and for the

choice of a personalized antihyperglycemic treatment. Despite mounting evidence of the clinical relevance of such issue, current diabetes clinical guidelines do not yet adequately consider sex/gender differences.

INVITED SPEAKERS

Sex differences between women and men with COPD

Joan B. Soriano
Dept of Respiratory Medicine of Hospital Universitario de la Princesa, Madrid, Spain

Chronic obstructive pulmonary disease (COPD) is a respiratory disease characterized by chronic, progressive, and largely irreversible airflow limitation associated with exposure to tobacco smoke and, to a lesser extent, inhalation of occupational or environmental toxins or biomass combustion products. Main symptoms include shortness of breath, chest tightness and pain, that increase during COPD exacerbations. Often in medical school, we were told to diagnose COPD with the triad: male, smoker, older than 65 yr. old. However, due to the massive incorporation of women to cigarette smoking since the 1970s, COPD has experienced a "feminization", with increasing prevalence, mortality and burden observed in females.
However, COPD is still considered mainly a "man's disease", causing a diagnostic bias that contributes to underdiagnosis in women. Numerous studies have evaluated the hypothesis that women are more susceptible to the toxic effects of tobacco than men.
Greater susceptibility to tobacco may be determined by anatomical (smaller airways), genetic and hormonal factors, and this difference may manifest already in childhood, since girls undergo greater lung function deterioration than boys when exposed to smoke or environmental pollution.
During the intervention, the succinct but interesting published evidence on gender and sex in COPD will be briefly discussed.
It is concluded that COPD is a growing health issue among women. It is a priority to design educational programs and training courses to emphasize the importance of COPD in females and to help raise clinical suspicion and reduce underdiagnosis. Similarly, the therapeutic management of female patients must be optimized with better differential characterization and special attention to comorbidities such as osteoporosis, anxiety or depression.

INVITED SPEAKERS

The impact of gender on interstitial lung disease

Paolo Spagnolo
University of Padua, Italy

Interstitial lung diseases (ILDs) represent a large and highly heterogeneous group of conditions characterized by various degrees of inflammation and fibrosis. Mouse model and human disease demonstrate that ILDs are clearly influenced by sex hormones. Short telomeres, a well-established risk factor for pulmonary fibrosis that is often associated with telomerase mutations, are also influenced by sex.
Diseases like idiopathic pulmonary fibrosis, hypersensitivity pneumonitis, occupational ILDs, connective tissue-associated ILDs and lymphangioleiomyomatosis have different prevalence and prognosis between men and women. These differences arise from a complex (and poorly understood) interplay between biological sex and sociocultural gender influencing genetics, epigenomic modifiers, hormones, immune function, response to treatment and interaction with healthcare systems. Much work remains to be done to systematically integrate sex and gender analysis into relevant domains of science and clinical care in ILD, from strategic considerations for establishing research priorities to guidelines for establishing best clinical practices. Accounting for sex and gender in ILD is essential to the practice of individualised, patient-centred medicine with the goal to improve care for all patients.

INVITED SPEAKERS

Gender differences in diffuse parenchymal lung disorders: imaging aspects

Nicola Sverzellati
Azienda Ospedaliero-Universitaria, Università di Parma, Italy

Investigations of the interaction and impact of gender on diffuse lung diseases are lacking. This is particularly true for the imaging aspects. Nevertheless, clear sex differences exist in the incidence and prevalence of respiratory diseases. Radiologists should consider sex prevalence data when interpreting diffuse lung diseases. Lymphangioleiomyomatosis is almost exclusively a disease of young women. Connective tissue-related interstitial lung disease is reported more frequently in younger women and never smokers. Pneumoconisosis are more frequent in men as opposed to sarcoidosis that is more often noted in women. Moreover, males and females respond differently to the type and location of lung damage due to tobacco exposure. In smokers, sex influences the morphologic features of both airways and emphysema. Interestingly, there is evidence suggesting sex differences in imaging features of COVID pneumonia.

INVITED SPEAKERS

To be a woman living with a chronic rheumatic disease

Angela Tincani
Rheumatology and Clinical Immunology, ASST-Spedali Civili and University of Brescia, Italy

It is known that rheumatic diseases (RD) affect more frequently woman than man. It is also clear that these diseases can occur at any age: from childhood to adult age, up to elderly time. Finally, it is clear that we are speaking of chronic diseases therefore a women can spend her all life with it.
For example, a woman can suffer of systemic lupus erythematosus (SLE) or rheumatoid arthritis (RA) from her teenager and she knows that she will not be able to get rid of it! Therefore, her life with the disease will be modulated accordingly, but our task is to let her know that still it can be rich and complete. To accompany her though the different steps of life is certainly a physician's duty as well as to treat her disease.
1-The first step deals with the acceptance of the disease. This is not always easy in young subjects. It's important to make them expert of their own disease. So, they can understand and choose the better style of life compatible to their condition. For young people and particularly for young women is very important their own image. Sometimes, RD or the treatments used for them can cause physical changes altering the patient self-esteem and finally making difficult the interpersonal relationship. The patients usually do not report this problem during the periodic consultation therefore it is physician's task understand the existence of a possible discomfort to be managed also with psychological help if needed.
2-Once accepted the disease and its consequences, the patients need to organize their life. For female patients one of the most important issues is "Family Planning". In this respect also the treating physician need to understand how to help. Before deciding a treatment, we need to know if the young patient that we face is planning to become mother and when. In fact, the drugs can be chosen accordingly. In addition, contraception can be discussed, when indicated, with different perspectives in the different diseases.
3-Pregnancy needs a careful counseling. In general, its outcome is more favorable if it occurs in when the disease is remission. It is also necessary to distinguish among different diseases that can confer different risks both for pregnancy outcome and for mother health during gestation. Puerperium is a particular period that is characterized by and high rate of flares for several RD. The patient needs to know this because of breast feeding (that can be still safe using proper drugs) and because of the extremely demanding period started after the childbirth for every mothers. Patients with RD often suffer of musculoskeletal problems and severe fatigue. This needs to be considered in the life of the future mothers and some strategies to overcome it should be planned in advance.
4-It is not rare to see women with a new diagnosis of RD in the early stage of menopause. This combination can be challenging for the patients and should be taken into consideration by physicians. In fact, besides the burden of the onset of a chronic disease, the patient is just entered a period not easy also for the general population. Menopause is frequently responsible for vasomotor symptoms, sicca of the mucosal tissue (including vagina), arthralgias, anxiety, depression and sleep disorders and, in the long term, of osteoporosis. RDs also can be responsible for many of these problems, therefore the patient can have a particular hard time. Hormonal replacement therapy gives very limited advantages, and it is indicated only for severe vasomotor symptoms. Even if some observational studies, but not all, showed that hormone replacement therapy improves disease among postmenopausal women with RA, physicians should consider carefully the many unwanted effects that it can cause like venous thromboembolism, stroke and breast cancer that limit their prescription even in the general population.
In conclusion, taking into account the different women need during life can help the physicians in the management of patients with RDs and can increase the trust of the women to the doctors finally conditioning the so important treatment adherence.

INVITED SPEAKERS

Immunity in children: sex and gender differences

Antonella Viola
Professor of General Pathology, Department of Biomedical Sciences, University of Padua, Scientific Director, Istituto di Ricerca Pediatrica-Città della Speranza, Padua, Italy

Sex and gender differences have a strong impact on human health. Immune responses are crucial to fight infections and maintain homeostasis and, on the other hand, they are involved in the pathogenesis of several diseases, including allergic and autoimmune disorders. Thus, recognizing sex and gender differences in inflammation and immunity is of utmost importance, not only to understand the pathogenesis of diseases but also to offer targeted therapies to patients.
The immune responses of human beings show age- and sex-related changes. While the development, maturation and aging of the immune system have been deeply investigated, sex- and gender-related differences are less researched; especially in infants, children and adolescents.
Nonetheless, epidemiological studies on susceptibility and disease outcome in pediatric infections indicate that gender plays a role, even before sexual maturation. The possible reasons for the observed gender biases in some infections will be discussed on the basis of the current knowledge of the immune system.

INVITED SPEAKERS

Gender medicine and oncology – Current status and challenges

Anna Dorothea Wagner
University Hospital and University of Lausanne, Switzerland

Molecular profiling of tumors, the development of immunotherapy, and targeted therapies have transformed the practice of oncology in recent years and allowed for significant progress. While the special situation of both elderly and younger patients has attracted some attention in the past, the impact of sex and gender on disease biology and treatment outcomes in oncology is being recognized only recently. In fact, sex- and gender differences exist in oncology

- in cancer susceptibility
- with regard to exposure to risk factors
- treatment allocation
- drug effects
- quality-of-life

and many more. Current challenges are the fact that existing knowledge about sex and gender differences in oncology is often dispersed, and not presented in a coherent manner. A systematic review on sex differences in pharmacokinetics of anticancer drugs is currently missing. Drug dosages and treatment regimens are developed with the aim to show efficacy against the cancer, but the question of potentially different optimal doses and a potentially different balance between efficacy and toxicity of anticancer treatments in men and in women is not addressed.
While treatment studies in oncology usually include a subgroup analysis according to sex or gender, potentially different outcomes of such subgroup analyses are ignored. Men and women are considered as subgroups, and sex- or gender specific treatment regimens are therefore not considered. To change this, a statement has been published "men and women are more than subgroups, but biologically distinct groups of patients, for which different treatment approaches merit consideration" (Wagner et al., Gender medicine and oncology: report and consensus of an ESMO workshop, Ann Oncol, 2019) . An ESMO position paper on why and how to conduct and interpret analyses according to sex and gender in clinical trials in oncology, is in preparation, as well as a systematic review on sex differences in the pharmacology of anticancer drugs. The homepage of the ESMO Gender MEDICINE task force https://www.esmo.org/about-esmo/organisational-structure/esmo-task-forces/esmo-gender-medicine-task-force, further learning material for ESMO members and regular presentations at ESMO congresses are among the ongoing projects of the task force.

OC01 ORAL COMMUNICATIONS

Womens Brain Project – an update on scientific activities and projects

Marta Di Meo[1]
[1]*Women's Brain Project*

The WBP is a non profit organization founded in Switzerland acting globally. Since its inception, in 2016, the WBP has focused its activities on the study of sex an gender determinants to brain and mental health, as the gateway to precision medicine. The group, composed by volounteers and collaborators spread across the globe is active on several projects that tackle the issue at a 360 degree with at least 4 main focuses:

- *basic science:* we perform research and publish results as well as reviews on sex differences in basic physiological mechanisms that could underlie sex difference sat clinical level. Ex: we have highlighted the importance of the X chromosome I and its inactivation in a dedicated review: "Genetic, epigenetic and environmental contribution to sex differences in the vulnerability to neurological and neuropsychiatric disorders: implications for therapeutic intervention;
- *clinical science:* we study sex an gender differences that might improve clinical practice, from prevention to diagnosis to treatment. We have recently published a systematic review showing underrepresentation of women in Alzheimer's clinical trials. We are also performing the first patient pathway project split by sex;
- *socio-economic:* we know that health is not just biology and we study socioeconomic determinants of brain and mental health. In particular, we are making the case for gender medicine in neurology by collaborating with the Economist Impact unit.

Furthermore, during the pandemic we did a series of webinars to discuss about sex and gender differences on psychological, social and economic impact of Covid 19.

- *novel technologies:* we think that sex differences should be accounted for also with AI-based novel technology for health.

We have published the first book in this field and we are currently exploring with a digital biomarker manufacturer sex differences in digital biomarker data for Alzheimer.

With Altoida, we are creating the new gold standard in brain health: Digital solution as possible solution for sex and gender differences in brain disorders.

With research, education, advocacy and dissemination the WBP hopes to push the topic of sex and gender determinants on the global agenda for the benefit of science, doctors and patients.

OC02 ORAL COMMUNICATIONS

Missed opportunities for stroke diagnosis in patients presenting acutely in the Emergency Department of a Swiss university hospital: a gender perspective

Barras Cécile[1;1], **Carole Clair**[1], **Michel Patrik**[2], **Michael Amiguet**[1]
[1]*Center for Primary Care and Public Health (Unisanté), DFRI, Lausanne, Switzerland,* [2]*CHUV, Department of Clinical Neurosciences, Lausanne, Switzerland*

Background: Women have a greater adverse functional impact than men after a stroke. This disparity has not yet been fully explained and many psycho-socio-economic aspects might influence women's prognosis. Acute Ischemic Stroke Chameleons (AIS-C) are defined as missed acute ischemic stroke (AIS) and represent 1.2 to 12% of stroke diagnose in Emergency Department (ED). The aim of our study is to analyze whether the sex and/or gender of patients leads to a difference in the correct recognition of AIS, and thus to differences in the management and prognosis between men and women.

Methods: We performed a nested case control study, using data collected from March 2003 to December 2020 from the Acute STroke Registry and Analysis of Lausanne (ASTRAL), which collects information on all AIS admitted to a single stroke unit/intensive care unit at the University Hospital of Lausanne, Switzerland. Patients admitted within 24 hours of AIS onset were included. We identified 182 patients diagnosed with AIS-C and we randomly selected a sample of 182 controls in the ASTRAL registry (n = 6007). We extracted available gender variables (marital status, having children, living status, education, professional categories, being active). We built logistic regression models to assess the association between sex and gender with AIS-C, adjusting for confounding variables (age and cerebellar stroke).

Results: AIS-C represented 3% of all AIS diagnoses in our ED. The proportion of women with AIS-C was 44% (n = 80). In the univariate analyses, sex was not associated with AIS-C (OR 1.02, 95% C 0.68-1.55). Adjusting for confounding variables did not change significantly this association. Gender and socio-demographic variables associated with AIS-C were age (OR 1.19, 95% CI 1.07-1.33) and difference of professional category (OR 3.12, 95% CI 1.06-9.01).

Conclusion: Gender influences AIS diagnosis. High occupational category protects against the risk of being misdiagnosed. Our results encourage further studies to investigate the role of gender in stroke.

OC03 ORAL COMMUNICATIONS

The prognostic role of sex and anemia in tongue cancer patients

Oriana D'Ecclesiis[1], Marta Tagliabue[2], Aurora Gaeta[1], Rita De Bernardis[2], Sara Gandini[1], Mohssen Ansarin[2], Susanna Chiocca[1]

[1]Department of Experimental Oncology, [2]Division of Otolaryngology Head & Neck Surgery, European Institute of Oncology IRCCS, Milan, Italy

Background: Although it is known that men and women differ genetically, biologically and by social construct, possible differences between sex regarding prognostic factors in survival remain uncertain. Moreover several studies showed that anemia is associated with poorer survival for patients with cancer.

Methods: This an observational retrospective cohort study. We collected clinical data of tongue cancer patients. Overall survival (OS) and disease free survival (DFS) were compared between women and men patients taking into account confounding and prognostic factors in multivariate Cox proportional hazard models. Stratified analyses were also conducted by sex and tumor stage.

Results: 576 patients were found eligible for the analysis, including 39.9% women and 60.1% men. Men patients were more often smokers ($p < 0.001$), alcohol users ($p < 0.001$), overweight ($p < 0.001$) and undergoing radiotherapy (RT) ($p = 0.002$). Multivariate models showed that anemia was an independent prognostic factor for women but not for men in terms of both OS and DFS. Specifically, women who had anemia compared to those who did not have anemia had a worse overall survival and disease free survival (Hazard ratio [HR] = 2.14; 95% Confidence interval [CI] 1.27-3.61; HR = 1.69; 95%CI 1.04-2.75, respectively). Men were found with half risk of death and relapse than women when diagnosed at stage I-II (HR = 0.43; 95%CI 0.23-0.79, p = 0.006; HR = 0.53; 95%CI 0.33-0.85, p = 0.009, for OS and DFS respectively). Anemia appears to be a poor prognostic factor for women at stage I-II ($p < 0.001$) but not for men ($p = 0.10$) in terms of OS. For stage III-IV patients, no differences emerged between either sexes or prognostic factors in terms of OS and DFS.

Conclusions: For early stages, in our cohort men present better OS and DFS than women. Anemia appears to be an independent prognostic factor for women, especially considering the early stages of the tumor.

OC04 ORAL COMMUNICATIONS

Gender and sex attention in the onset of melanoma

Monica Onorati[1], Barbara Valeri[2], Marta Nicola[1], Franca Di Nuovo[1]

[1]Pathology Unit, ASST Rhodense, Garbagnate Milanese, Italy, [2]Pathology Unit, IRCCS Istituto Nazionale dei Tumori, Milan, Italy

Introduction: The incidence of cutaneous malignant melanoma has been rapidly increasing due to greater sun exposure, a better skin cancer screening and early diagnosis improving patient outcomes. We report the experience of two Italian centers about melanoma gender differences, in terms of biology and prognostic factors of this malignant neoplasm.

Methods: We reviewed a total of 3291 cases of melanoma, arisen between 2015 and 2019. We analyzed clinical and biological parameters, social and cultural background, ethnicity and melanoma prognostic factors to assess whether these gender-oriented features could influence a different behavior of the malignant neoplasm between women and men. We built a statistical analysis and algorithm comparing the melanoma prognostic factors and possibly predict "backwards" the sex of the patient based on these features.

Results: Our series was composed of 1737 men and 1554 women. Prognostic factors were unfavorable for men. In particular, Breslow depth greater than 4 mm, ulceration, neural and vascular neoplastic invasion affected more males than females. For men the most common site of involvement was the back, while for women the extremities were more commonly affected, favoring the hypothesis of a different sun exposure pattern in the two sexes. The predominant histological types in men were superficial spreading melanoma, nodular melanoma and nevoid melanoma, while rare histological types arose in a large percentage of women. Statistical analysis confirmed the existence of differences in melanomas arising in the two sexes and the statistical data integration analysis of specific melanoma prognostic factors allowed us to understand if the patient was a male or a female.

Conclusions: The peculiar results we obtained are related to the possibility to predict backwards the sex of the patients given the melanoma prognostic factors observed. In the future these data could help to improve patient outcomes due to a better skin cancer screening, because without a sex- and gender sensitive disparities in outcomes will persist.

OC05 ORAL COMMUNICATIONS

Does gender-affirming hormonal treatment affect 30-year cardiovascular risk in transgender people? A two-year prospective European study (ENIGI)

Carlotta Cocchetti[1], Giovanni Castellini[2], Alessia Romani[1], Mario Maggi[3], Linda Vignozzi[1], Thomas Schreiner[4], Martin den Heijer[5], Guy T'Sjoen[6], Alessandra Daphne Fisher[1]

[1]Andrology, Women's Endocrinology and Gender Incongruence Unit, Florence University Hospital, Florence, Italy, [2]Department of Health Sciences, Psychiatric Unit, [3]Department of Experimental and Clinical Biomedical Sciences "Mario Serio", University of Florence, Florence, Italy, [4]Department of Endocrinology, Oslo University Hospital, Oslo, Norway, [5]Department of Endocrinology and Center of Expertise on Gender Dysphoria, Amsterdam University Medical Center, VUmc, Amsterdam, The Netherlands, [6]Department of Endocrinology, Center for Sexology and Gender, Ghent University Hospital, Ghent, Belgium

Background: Cardiovascular (CV) implications of long-term gender affirming hormonal treatment (GAHT) in transgender people still remain largely unknown. The aim of the present study is to evaluate changes in the 30-year Framingham cardiovascular disease (CVD) risk in a large cohort of transgender people after the start of GAHT.

Methods: In a multicenter prospective study, a consecutive series of 309 participants (n = 165 AFAB; n = 144 AMAB) was evaluated during a 2-year follow-up. Prospectively, after the start of GAHT a physical examination was performed and blood samples were drawn. CVD risk was calculated for each person, according to the Framingham 30-year CVD risk estimate.

Results: In trans AMAB people a significant decrease in triglycerides, total cholesterol and LDL-cholesterol was observed during the 2-year follow-up ($p < 0.05$), whereas no significant changes were found in HDL-cholesterol levels. In trans AFAB people unfavourable lipid changes – such as increased total cholesterol, triglycerides, and LDL cholesterol levels and decreased HDL cholesterol levels ($p < 0.05$)- occurred after the start of GAHT. At baseline transgender people showed an estimated 30-year risk of general and hard CVD events significantly higher than the optimal ones based on age and gender ($p < 0.0001$). In trans AFAB people unfavourable changes in risk factors led to an increase in the risk of general and hard CVD events based on lipid profile over time ($p = 0.001$ and $p = 0.005$, respectively). No significant changes in general and hard CVD risk based on lipid profile were observed in trans AMAB people over time.

Conclusions: Our findings confirmed the unfavourable lipid changes in trans AFAB individuals after the start of GAHT even during a longer follow-up, empathizing the potential clinical impact of these modifications on individual long-term CVD risk.

OC06 ORAL COMMUNICATIONS

Epigenetic and immunological remodeling by gender-affirming hormone therapy

Boris Novakovic

Murdoch Children's Research Institute, Royal Children's Hospital and Department of Paediatrics, University of Melbourne, Parkville, Victoria, Australia

Background: In humans, sexual dimorphism in the immune response has been well demonstrated, with females exhibiting lower infection rates than males for a variety of pathogens, but higher incidence of autoimmune disease. This dimorphism is due to a combination of genetic, hormone and epigenetic mechanisms. In individuals where gender identity and sex assigned at birth are markedly incongruent, as in the case of transgender people, feminization or masculinization may be sought through gender-affirming hormone therapy (GAHT). GAHT is a cornerstone of transgender care, yet no studies to date have investigated its effect on genome-wide epigenetic marks and the function of specific immune cells types.

Objective: To characterise the influence of feminizing and masculinising GAHT on the epigenetic profile in blood and to understand how this affects immune function.

Methods: We profiled genome-wide DNA methylation in blood of transgender women (n = 13) and transgender men (n = 13) before and during GAHT (6 months and 12 months into feminizing or masculinizing hormone therapy). Additionally, in a cohort of 70 transwomen undergoing GAHT (baseline, 3 months, and 6 months following GAHT) we profile the global changes in inflammatory markers, immune signalling molecules and explore the effects on responses to microbial compounds. Results: We provide evidence for GAHT inducing a unique blood methylation signature in transgender people through remodelling of several thousand differentially methylated CpG sites. The primary effect of GAHT was observed at regions of the genome that are sensitive to change during puberty.

Conclusion: Our studies advance our understanding of the complex interplay between sex hormones and epigenetics in the context of immunity. We highlight the need to broaden the field of 'sex-specific' immunity beyond cisgender males and cisgender females, as transgender people on GAHT exhibit a unique molecular profile.

OC07 ORAL COMMUNICATIONS

"Signposts and Technicians": a reflexive thematic analysis of how general practitioners and endocrinologists understand their roles in transgender medicine

Jonathan Franklin[1], Apoorva Thakur[1], Vinod Patel[1]
[1]Warwick Medical School, Coventry, United Kingdom

Background: Growing numbers of people are seeking gender identity treatment, with paediatric referrals doubling in the UK over the last five years. Doctors are central to the process of gender affirmation therapy, providing legal recognition and access to medication, but there are few formal training programmes in transgender medicine. Surveys from the United States have indicated that many doctors do not feel prepared to treat, while ethnographic studies have argued that physicians rely on ideological preconceptions when treating transgender patients. Some transgender activists have proposed that doctors should have a reduced role in the process, suggesting that their current importance pathologises transgender people. However relatively little is known about how the doctors themselves understand their role in gender affirmation care as they navigate this increasingly visible and contentious field.

Methods: UK General practitioners and endocrinologists (n = 16) with experience of caring for transgender patients were recruited through societies representing both specialities, and through snowballing. Their understandings of the doctors' role in transgender care were explored using individual semi-structured online interviews. Data was coded and analysed according to Braun's and Clarke's guidelines for reflexive thematic analysis, wherein themes were iteratively refined as interviews progressed.

Results: Seven themes were identified, highlighting the specialty-specific challenges in transgender medicine. GPs envisaged their role as supportive listeners and signposts for services, and therefore some were reluctant to prescribe hormonal treatments. Endocrinologists described themselves as 'technicians' simply carrying out the task of providing hormonal treatment. Many respondents felt under-trained for their role and none were willing to treat without the input of a mental health professional.

Conclusion: Transgender medicine requires competencies that draw beyond the traditional demarcations between medical fields. Doctors reported that there are insufficient pathways for training in transgender medicine and their different outlooks on transgender care suggest obstacles to collaboration between specialties.

OC09 ORAL COMMUNICATIONS

The state of affirmative mental health care for Transgender and Gender Non-Confirming people: an analysis of current research, debates, and standards of care

Manlio Converti[1], Andrea Crapanzano[1]
[1]AMIGAY aps, Naples, Italy

In recent years, there has been a growth in the visibility of Transgender and Gender Non-Confirming-identified people (TGNC) in popular culture and academia. There has been a significant increase in publications and interest in the field of transgender healthcare. As a result, the scientific literature around TGNC has flourished leading to the development of progressively more trans-affirmative practice across the multiple health disciplines involved in the care of TGNC people. Following Singh and Dickey's definition, TGNC-affirmative counseling and psychological practice is intended to be: "Counseling that is culturally relevant and responsive to TGNC clients and their multiple social identities, addresses the influence of social inequities on the lives of TGNC clients, enhances TGNC client resilience and coping, advocates to reduce systemic barriers to TGNC mental and physical health, and leverages TGNC client strengths. In short, TGNC-affirmative counseling and psychological practice privileges the client's autonomy". Despite this, TGNC population is still faced with political, economic, legal, and medical struggles affecting their mental health and access to health care. Moreover, Mental Health Professionals still report having limited training and experience in TGNC affirmative care and generalizing their competence to work with other diverse groups, such as LGB individuals, with TGNC population. Our presentation aims at providing professionals with the most updated information and research findings to help them develop a more trans-affirmative practice. We will focus on the main documents that inform professionals working with this population. Furthermore, this presentation offers research-based guidelines and discusses the major Theoretical and Istitutional Frameworks professionals are encouraged to achieve in their Country. Additionally, this presentation will present the current debate around the diagnoses of Gender Dysphoria (DSM-V) and Gender Incongruence (ICD-11). Finally, the controversy between the Medical Model based on the Diagnosis of Gender Dysphoria and the emerging Informed Consent Model will be reviewed. We will discuss all of it from the Italian and Californian perspective, reminding the need to change into Health National Protocols about TGNC Healthcare.

OC10 ORAL COMMUNICATIONS

Efficacy and safety of medical treatment in the clinical management of adolescents with gender dysphoria (GD): a prospective follow-up study

Alessia Romani[1], Jiska Ristori[1], Francesca Mazzoli[1], Carlotta Cocchetti[1], Linda Vignozzi[1], Mario Maggi[2], Alessandra Daphne Fisher[1]

[1]Andrology, Women's Endocrinology and Gender Incongruence Unit, Florence University Hospital, Florence, Italy, [2]Department of Experimental, Clinical and Biomedical Sciences, Careggi University Hospital, Florence, Italy

Gender diversity in adolescents is often associated with poor psychological functioning; moreover, puberty is experienced as a "natural disaster" by adolescents with Gender Dysphoria (GD), since the surge of sexual steroids changes their bodies in an unwanted direction.

The present study assessed the efficacy of Gonadotropin-Releasing Hormone agonists (GnRHas) treatment for puberty suppression in terms of psychological functioning and physical changes in a sample of adolescents with GD assessed at the Florence Gender Clinic.

Thirty-six adolescents, namely 22 assigned female at birth (AFAB) and 14 assigned male at birth (AMAB)-were evaluated at first referral (T0), after a psychological assessment phase and shortly before the start of GnRHas (Triptorelin; T1) and after an average follow-up of 7 ± 3.18 months of treatment with GnRHas and psychological support (T2). At each time, physical and biochemical examinations were performed, and general psychopathology, depressive symptoms and suicidal risk were measured through validated questionnaires (Youth Self Report (YSR), Beck Depression Inventory (BDI); Multi-Attitude Suicide Tendency Scale (MAST)).

Average age of adolescents at T1 was 14.19 ± 1.88 years old. At T2 vs. T1, a significant reduction in gonadotropins levels, sex steroids levels, and Tanner stage were observed in both genders (all $p < 0.05$); body mass index (BMI) and mean arterial blood pressure (MABP) percentiles showed no significant increase ($p > 0.05$), while height percentile decreased only in transgirls at T2 ($p < 0.05$). No significant changes were observed in LDL cholesterol and glycated haemoglobin ($p > 0.05$). Psychological support alone resulted in no changes in psychological functioning, whereas a significant increase in repulsion to death (MAST scale), a significant decrease in general psychopathology (YRS total and internalizing subscale), and in depression (BDI scale) levels were observed with GnRHa treatment together with psychological support ($p < 0.05$).

These preliminary data suggest that GnRHa therapy is effective in suppressing pubertal changes with no impact on MABP, BMI, glucometabolic and lipid asset in trans adolescents. Also, puberty suppression together with psychological support showed efficacy in improving psychological functioning.

OC11 ORAL COMMUNICATIONS

Health promotion of immigrant communities in Italy: gender and religion challenges

Claudio Giovannini[1], Leuconoe Grazia Sisti[1], Mariangela Falà[2], Paola Gabbrielli[2], Walter Malorni[1]

[1]Center for Global Health, Research and Studies, Università Cattolica del Sacro Cuore, Rome, Italy, [2]Inter-religions Board of Rome, Rome, Italy

One of the challenges for the Italian health system is the fight against health inequalities which also includes the promotion of the health of all fragile minorities present in the national territory. As foreseen by the Italian constitution, the aim is to provide adequate prevention, diagnosis and treatment services to all people. The presence in Italy of a significant foreign population (5-6 million including both formally residents and not officially registered ones) introduces significant transformations in the Italian demography with important challenges on ensuring fundamental rights including work, education and above all, health. Compared to that which took place in other European countries, migration in Italy has some peculiarities: the short period (just over twenty years) in which it developed, the great diversity of origin of migrants (over 200 countries) and the belonging of migrants to religious confessions other than Catholic, such as Christian-Orthodox (32%), Muslim (27%), Hindu (3%), Buddhist (2%) and the various animist religions.

Issues common to the entire migrant population concern the difficulty of accessing the health system of the host country due to the lack of knowledge of its rules and its functioning, the linguistic and cultural barriers and the distrust towards a system that is not recognized as his own, as well as the difficulties and misunderstandings encountered in the relationship with health professionals. Religion, culture and gender may even increase these difficulties. Some examples are as follows: i) the need to be examined by a physician of the same sex, especially for women; ii) the poor attitude to seek healthcare services by men who often perceive the disease as a social burden; iii) the presence of significant problems with circumcisions of women and men in unsafe conditions; iv) the "use" of certain religious and cultural beliefs to induce young women to accept to become sex workers.

Gender and religion should be taken into account when designing and implementing healthcare services and healthcare workers need to be trained in acknowledging these challenges. Our Center mission is to point out and address the main religion and gender-associated criticisms in order to support the Italian NHS in ensuring the overcoming of barriers that hamper the enjoyment of the right to health.

OC12 ORAL COMMUNICATIONS

The gender gap in the diagnostic-therapeutic journey of the infertile couple

Giuseppe Gullo[1], Gaspare Cucinella[2], Antonio Perino[3], Daniela Segreto[4], Giovanni Buzzaccarini[5], Rossella Tomaiuolo[6], Antonio Simone Lagana'[7], Domenico Gullo[8]

[1]Azienda Ospedaliera Ospedali Riuniti (AOOR) Villa Sofia - Cervello, IVF UNIT, University of Palermo, Palermo, Italy, [2]Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties (PROMISE), [3]OB GYN, Azienda Ospedaliera Ospedali Riuniti (AOOR) Villa Sofia - Cervello, IVF UNIT, University of Palermo, Palermo, Italy, [4]Technical Panel on Gender Medicine, Sicily Regional Health Service, Palermo, Italy, [5]Department of Women's and Children's Health, University of Padua, Padua, Italy, [6]Vita-Salute San Raffaele University, Milan, Italy, [7]Unit of Gynecologic Oncology, ARNAS "Civico - Di Cristina - Benfratelli", Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties (PROMISE), University of Palermo, Palermo, Italy, [8]University of Palermo, Palermo, Italy

Medical procreation impairs both the biological and psychological lives of couples. How-ever, male and female attitudes to infertility are different and require a different approach during the IVF journey. Thus, the gender impact assessment (GIA) method was used to analyse original studies present in the literature. We found some gender-related differences and, subsequently, possible outcomes of intervention to improve healthy reproduction management and prevent infertility. In particular, it became apparent that there was the need for an in-depth male infertility assessment and a gender-specific follow-up. Including the gender dimension throughout the diagnostic-therapeutic journey of infertile couples helps eliminate gender bias, indicating how to design equitable access to infertility diagnosis and treatment.

OC13 ORAL COMMUNICATIONS

Differences between men and women in the treatment with new diabetes medicines sodium-glucose Co-transporter 2 inhibitors

Diana Rydberg[1,2], Linnéa Karlsson Lind[3], Karin Schenck-Gustafsson[4,5]

[1]Clinical Pharmacology, Karolinska University Hospital, Stockholm, Sweden, [2]Department of Laboratory Medicine, Division of Clinical Pharmacology, [4]Centre for Gender Medicine, [5]Division of Cardiology, Department of Medicine, Karolinska Institutet, Stockholm, Sweden, [3]Health and Medical Care Administration, Department of Knowledge Development, Stockholm, Sweden

The Swedish knowledge database Janusmed Sex and Gender, available at www.janusinfo.se/genus/in-english, collects evidence-based information on sex and gender aspects for individual medicines and is available online for healthcare professionals. The newer glucose-lowering medicines sodium-glucose co-transporter 2 (SGLT2) inhibitors are one of the pharmacological groups covered. In addition to reducing high glucose levels, SGLT2 inhibitors also reduce the risk of cardiovascular events and progression of chronic kidney disease in patients with or without type 2 diabetes. Positive effects in heart failure are also found. Type 2 diabetes is a strong risk factor for cardiovascular disease and women are associated with a greater relative risk of coronary heart disease than men. We hypothesized that sex-specific analyses of SGLT2 inhibitor treatment should have been reported in the scientific literature.

PubMed was searched for publications with sex-divided results regarding efficacy and safety of empagliflozin or dapagliflozin.

Randomized controlled trials show that empagliflozin and dapagliflozin prevent cardiovascular events in patients with type 2 diabetes or heart failure with or without chronic kidney disease, and in both men and women. However, women comprised only 35% of the study population in the clinical trials. Sex differences in adverse events were identified, the most important being the increased risk of mycotic genital infections, which need to be considered particularly in women as the risk is higher in women compared to men.

According to the Swedish Prescribed Drug Register, almost twice as many men as women in Sweden got a prescription of empagliflozin or dapagliflozin. Whether this sex difference in use reflects under-treatment of women or consideration of adverse events warrants further investigation.

OC14 ORAL COMMUNICATIONS

Sex-related disparities in the management and prognosis of acute coronary syndrome in Switzerland

Carole Clair[1], Marie-Annick Le-Pogam[2], Elodie Huber[1]
[1]Department of Training, Research and Innovation, [2]Department of Epidemiology and Health Systems, Center for Primary Care and Public Health, University of Lausanne, Lausanne, Switzerland

Introduction: Mortality and recurrence after an ischemic heart event are more frequent in women, especially in younger age groups. The objective of this study is to assess if there are differences in the management and prognosis between men and women who underwent an ischemic heart event in Switzerland.

Method: Retrospective analysis of hospital administrative health data including all acute coronary syndrome events consisting of unstable angina, non-ST-segment-elevation myocardial infarctions (NSTEMI) and ST-segment-elevation myocardial infarctions (STEMI) occurring in Swiss hospitals between 2009 and 2017. We compared management and outcomes between men and women using two-samples t-test for normal continuous variables and Person's Chi-square test for categorical variables. Logistic regression models adjusted for potential confounding factors were built for each outcome.

Results: 224,249 participants were included (32.5% of women). The proportion of NSTEMI and unstable angina were higher in women than men (52.2% vs. 47.2% and 16.0% vs. 15.4%, respectively), whereas the proportion of STEMI was higher in men (37.4% vs. 31.8%). Compared to men, and after adjustment to potential confounding factors, women were less likely to receive cardiologic investigations such as coronarography (Odds Ratio (OR) 0.81, 95% Confidence Interval (95% CI) 0.79-0.83) and angiocardiography (OR 0.85, 95% CI 0.83-0.87), and treatments such as thrombolysis (OR 0.90, 95% CI 0.86-0.95), percutaneous coronary intervention (PCI) without stenting (OR 0.72, 95% CI 0.71-0.74), PCI with stenting (OR 0.72, 95% CI 0.71-0.74) and coronary artery bypass graft (OR 0.61, 95% CI 0.58-0.64). Women were more likely than men to get complications from medical and surgical care (OR 1.13, 95% CI 1.10-1.17), to experience hospitalizations of more than 5 days (OR 1.23, 95% CI 1.20-1.25) and to be readmitted (OR 1.09, 95% CI 1.04-1.14). Intrahospital death rates were higher among women (7.5%) compared with men (5.2%), with an unadjusted OR of 1.46 (95% CI 1.41-1.51) but the difference became non-significant after adjustment for confounding variables (OR 0.92, 95% CI 0.88-0.96), the main confounder being age.

Conclusion: There are important differences in management of ischemic heart events between men and women. These have an impact on morbidity.

OC15 ORAL COMMUNICATIONS

Impaired cardiac mitochondrial homeostasis and pro-inflammatory shift in old women with myocarditis-related cardiomyopathy

Maria Luisa Barcena[1], Greta Tonini[1], Pavelas Breiter[1], Misael Estepa[2], Hendrik Milting[3], Istvan Baczko[4], Ursula Müller-Werdan[1], Vera Regitz-Zagrosek[5]
[1]Department of Geriatrics and Medical Gerontology, [5]Institute for Gender in Medicine, Charité - Universitätsmedizin Berlin, Berlin, Germany, [2]Department of Medicine - Cardiology, Deutsches Herzzentrum Berlin, Berlin, Germany, [3]Heart and Diabetes Centre NRW, Erich and Hanna Klessmann Institute, University Hospital of the Ruhr-University Bochum, Bad Oeynhausen, Germany, [4]Pharmacology and Pharmacotherapy, Interdisciplinary Excellence Centre, University of Szeged, Szeged , Hungary

Myocarditis is associated with myocardial inflammation, impaired metabolism, and mitochondrial dysfunction, leading to heart failure. Age and sex differences might play an important role in the development of heart failure. the impact of these factors remains poorly understood. We aimed to investigate, whether sex and age contribute to the alterations in metabolic sensing via Sirt1 and AMPK, mitochondrial biogenesis, and inflammatory response in myocarditis-related cardiomyopathy.

Methods: Cardiac tissue from old patients with end-stage myocarditis-related cardiomyopathy (men = 20 and women = 15) and from healthy individuals (men = 16 and women = 15) were used for qRT-PCR and western blot analysis. Expression of Sirt1, phosphorylated AMPK, acetylated SOD and several mitochondrial genes were analyzed. NFκB and IL-18 were used to examine the inflammatory state in the heart.

Results: Myocardial AMPK expression and activity were significantly elevated in male myocarditis patients, whereas Sirt1 remained unchanged in all groups investigated. In accordance with this, expression of all mitochondrial proteins/genes investigated was preserved in male patients, whereas it was significantly reduced in old women, e.g., mitochondrial import proteins TOM40 and TIM23 and mitochondrial oxidative phosphorylation genes cox1 and nd4. Mitochondrial acetylation state was significantly reduced in old male. Analysis of inflammation markers revealed downregulation of NFκB in old male myocarditis patients, whereas elevated expression of the pro-inflammatory IL-18 was found in old female patients.

Conclusion: Old women with myocarditis-related cardiomyopathy undergo a decline in mitochondrial homeostasis, while an increased AMPK expression and activity preserve mitochondrial biogenesis in the hearts of old male patients. Mitochondrial biogenesis in old men with end-stage myocarditis is accompanied by a declined mitochondrial acetylation and an enhanced mitochondrial antioxidant defense. Along with the impaired cardiac mitochondrial homeostasis in old women with myocarditis, the pro-inflammatory response is activated. The data propose a strategy to

ameliorate the impaired mitochondrial homeostasis and the proinflammatory shift in old female myocarditis patients by treatment with AMPK activators.

models, therefore a great effort must be made by the clinical community for the widespread diffusion and use of models incorporating NT-RF.

OC16 ORAL COMMUNICATIONS

Spontaneous coronary artery dissections: analysis of non traditional risk factors

Rossella Giacalone[1], Marco Ferretti[2], Filippo Luca Gurguglione[1], Manjola Noni[1], Giovanna Maria Pelà[3], Antonella Vezzani[4], Maria Alberta Cattabiani[1], Giorgio Benatti[1], Iacopo Tadonio[1], Giulia Magnani[1], Francesco Nicolini[5], Giampaolo Niccoli[1], Diego Ardissino[1], Luigi Vignali[1], Emilia Solinas[1]

[1]Division of Cardiology, [4]Cardiac Surgery Intensive Care Unit, [5]Division of Cardiac Surgery, Parma University Hospital, University of Parma, Parma, Italy, [2]Division of Cardiology, IRCC Santa Maria Nuova Hospital, Reggio Emilia, [3]Department Of Medicine and Surgery, University of Parma

The etiology of spontaneous coronary dissection (SCAD) is not well defined. Non traditional risk factors (NT-RF) have assumed increasing interest, but few data are available. NT-RF include two main categories: Sex-related (SR-RF) and Sex predominant (SP-RF) risk factors, and Gender-related (GR-RF).

Aim of the study: The objective of our analysis was to evaluate the incidence of NT-RF in Parma SCAD registry population.

Material and Methods: We reviewed 62 patients with SCAD enrolled from 2013 to 2021.

Results: Traditional risk factors were less common: hypertension was the most prevalent (39 pts, 62.9%). When considering NT-RF, 51 patients (82%) had at least one of all, with at least one SR-RF (66%) or GR-RF (64,5%). Patients with NT-RF were younger at time of SCAD (mean age 53 vs 66; p = 0.027) and they were predominantly females (48 vs 7 pts, p = 0.004). No differences were found among NT-RF SCAD and nNT-RF SCAD patients by fibromuscular dysplasia, peripheral arterial disease and chronic kidney disease. Patients with SCAD more often presented with non ST-segment elevation myocardial infarction (43 pts, 72.6%) vs ST-segment elevation (17 pts, 27.4%). No differences in clinical presentation and angiographic characteristics were found among NT-RF and nNT-RF patients group. MACE occurred in 17.7% of patients of the overall study population, at a median follow-up of 23 months. When comparing the incidence of cardiovascular events in the study groups there was a trend toward a higher prevalence of MACE in NT-RF group without statistical significance (NT-RF SCAD 19.6% - nNT-RF SCAD 9.1%; p = 0.4).

Conclusion: SCAD is an emerging cause of myocardial infarction in young and middle-aged women without the traditional cardiovascular risk profile. Risk estimation is difficult in women, due to the scarce validity of prediction

OC17 ORAL COMMUNICATIONS

In-home pain-free exercise for the rehabilitation of peripheral arterial disease: is this the way to better outcomes in women? A 7-year cohort study

Caterina Savriè[1], Tsolaki Elpiniki[2], Giovanni Piva[3], Benedetta Boari[4], Roberto Manfredini[5], Vincenzo Gasbarro[2], Fabio Manfredini[6], Nicola Lamberti[6]

[1]Department of Medical Sciences, [2]Vascular and Endovascular Surgery Unit, Department of Medical Sciences, University of Ferrara, University Hospital of Ferrara, Ferrara, Italy, [3]PhD Program in Environmental Sustainability and Wellbeing, Department of Humanities, [4]Clinica Medica Unit, Department of Medical Sciences, [5]University Center for Studies on Gender Medicine, [6]Department of Neuroscience and Rehabilitation, University of Ferrara,Ferrara, Italy

Background: Exercise counteracts walking disability and cardiovascular risk in peripheral arterial disease (PAD). Participation to rehabilitation programs is affected by barriers particularly among women. We examined the sex differences in adherence and rate of survival in PAD patients enrolled in a pain-free home-based program.

Methods: Two-hundred PAD patients at Leriche-Fontaine's stage II referring to the Vascular Surgery and Clinica Medica units, University Hospital of Ferrara, were enrolled in a structured "test in–train out" program (in-home pain-free interval walking, few hospital visits) managed by the Rehabilitation Unit. A control ($_{CO}$) group of 200 PAD patients receiving follow-up visits and walking advise was also studied. For the analysis, patients were categorized into four subgroups according to sex (M/F) and exercise ($_{EX}$): (M_{EX}, $F_{EX,}$ M_{CO}, $F_{CO)}$.

Results: The final sample included 113 F and 287 M (62 F_{EX}, 138 M_{EX}, 51 F_{CO}, 149 M_{CO}). At baseline, the subgroups did not differ for demographics, comorbidities and PAD severity. M_{EX} and F_{EX} patients completed the program (median 253 days, interquartile range 187-322) with similar adherence rate (85 vs. 86% of completed sessions, respectively, p = 0.80, NS).

The median follow-up time was 6.25 years (IQR 4.8-7.0). A total of 143 deaths was recorded (F:M 34:109, 30 vs. 38%; Ex:Co 31:112, 16 vs. 56%). Among subgroups, the survival rate was 94% in F_{EX}, 82% in M_{EX}, 45% in F_{CO} and 44% in M_{CO}. Kaplan–Meier analyses showed a significantly lower mortality risk for F_{EX} compared to all subgroups. Multivariate Cox regression identified age (HR: 1.09; CI: 1.06-1.11), chronic kidney disease (HR: 2.04; CI: 1.45-2.87), and Co group (HR: 4.40; CI: 2.93-6.59) as predictors of mortality in the entire population. An almost-significant protective factor was calculated for F (HR: 0.68; CI: 0.46-1.01).

Conclusions: Among PAD patients at a 7 year follow

up, an in-home pain-free rehabilitative exercise was associated to a protective effect compared to usual care, with further significant higher rate of long term survival, particularly in females. Exercise programs favoring the adherence of females should be implemented.

OC18 ORAL COMMUNICATIONS

Predicting out-of-hospital cardiac arrest (OHCA) survival in women and men

Robin Smits[1], Shaun Sødergren[2;3], Ehsan Motazedi[1], Hans van Schuppen[4], Fredrik Folke[2;3;5], Martin Jonsson[6], Mattias Ringh[6], Ellinor Berglund[6], Laura van Dongen[7], Hanno Tan[7;8], Irene van Valkengoed[1]

[1]Amsterdam Public Health Research Institute, Department of Public Health, [4]Department of Anesthesiology, Amsterdam UMC, University of Amsterdam, Amsterdam, The Netherlands, [2]Emergency Medical Services Copenhagen, Copenhagen University Hospital, Ballerup, Denmark, [3]Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark, [5]Department of Cardiology, Herlev and Gentofte Hospital, University of Copenhagen, Copenhagen, Denmark, [6]Department of Clinical Science and Education, Centre for Resuscitation Science, Karolinska Institutet, Sweden, [7]Heart Centre, Amsterdam Cardiovascular Sciences, Department of Clinical and Experimental Cardiology, Amsterdam, Amsterdam UMC, Academic Medical Centre, University of Amsterdam, Amsterdam, The Netherlands, [8]Netherlands Heart Institute, Utrecht, The Netherlands

Background: The advanced life support termination of resuscitation rule (ALS-TORR) helps EMS-personnel determine the futility of resuscitation and transport after OHCA. The ALS-TORR considers delivery of a shock, presence of a witness, provision of cardiopulmonary resuscitation (CPR), as well as the intermediate outcome return of spontaneous circulation (ROSC). However, no studies to date have evaluated whether this rule predicts survival equally well for both sexes. Therefore, we evaluate the diagnostic accuracy of the ALS-TORR for survival in women and men. Moreover, we study whether, on top of the criteria included in ALS-TORR, other resuscitation and patient characteristics may improve prediction.

Methods: In a combined cohort of Swedish (SAMBA; 2006-2019) and Dutch (ARREST; 2006-2015) EMS-attended first event OHCA cases that were ≥ 18 years and had a presumed cardiac cause, we evaluated the diagnostic accuracy of the ALS-TORR in women and men separately. Diagnostic accuracy was defined by sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV). The primary outcome was 30-day survival after OHCA. Secondary outcomes were survival to hospital admission and neurologically intact survival. Next, with recursive partitioning analysis we assessed whether initial shockable rhythm, public location of arrest, age, heart failure, previous myocardial infarction, diabetes, chronic obstructive pulmonary disorder, renal function disorder, and use of beta-blockers improved the accuracy of survival prediction. We aimed to identify a subgroup of OHCA cases with a 30-day survival chance below 1%. A classification tree was built and diagnostic accuracy of the resulting model was again evaluated. External validation of the classification tree was done in the Danish DANCAR cohort (2001-2015).

Results: Preliminary results of these analyses will be presented during the congress.

OC19 ORAL COMMUNICATIONS

Male gender: a risk factor in Kawasaki disease?

Isabella Tarissi De Jacobis[1], Alessandra Marchesi[1], Elisabetta Straface[2], Giovanni Orso[1], Marta Mosticchio[3], Alberto Villani[1]

[1]Pediatria, Ospedale Pediatrico Bambin Gesù, Rome, Italy, [2]Istituto Superiore di Sanità, Rome, Italy, [3]Ospedale Pediatrico Bambin Gesù, Rome, Italy

Background: Kawasaki disease (KD) is one of the most common pediatric vasculitis that, in absence of adequate treatment, can be complicated by dilations and aneurysms of the coronary arteries. The aim of this study was to evaluate in patient with KD gender differences in the incidence, development of coronary complications and response to therapy.

Methods: In this retrospective study, 250 KD patients (157 males and 93 females) admitted to the Bambino Gesù Children's Hospital of Rome (Italy) between January 2005 and September 2018 were analyzed. In particular, KD patients with typical (53.6% of patients) and incomplete (46.4% of patients) were considered. Cardiovascular complications were detected by echocardiography.

Results: Data obtained indicate that, compared to females, males with KD: i) had a higher rate of cardiovascular complications ($p < 0.05$); ii) were "non responders" to the first bolus of IVIG; and iii) required treatment with a 2° bolus of IVIG ($p < 0.05$) when had cardiovascular complications.

Conclusions: According to literature data, this study confirms gender influence in KD course and therapy response. Male gender, in particular, could represent a negative prognostic factor for KD and be associated to high risk to develop cardiovascular complications.

Creating a score that includes gender differences would be key to stratify the risk of developing cardiovascular complications at the time of diagnosis. The clinical implications of this investigation could be the improvement of first-line corticosteroid therapy and the need for closer echocardiographic follow-up for male patients.

OC20 ORAL COMMUNICATIONS

Gender-specific medical library: a work-in-progress tool

Anna Maria Moretti[1], Davide Bizzoca[2], Biagio Moretti[3]
[1]GISEG - Gruppo Italiano Salute e Genere, [2]UOC Ortopedia e Traumatologia; UOSD Chirurgia Vertebrale, Policlinico di Bari, Bari, Italy, [3]SMBNOS - UOC Ortoopedia e Traumatologia Universitaria, Università degli Studi di Bari Aldo Moro, Bari, Italy

Introduction: International medical scientific literature has shown an increasing interest in the study of sex and gender-specific variables, in the last recent years. The present study aims to describe and promote the gender-specific medical library project.

Materials and Methods: International medical scientific literature was analysed by different investigators belonging to a broad spectrum of Medical branches. The keywords "gender", "gender-related" and "gender-specific" or "sex", "sex-related" or "sex-specific" were used. The searched papers were deeply analysed and the data of scientific relevant manuscripts were acquired.

Results and Discussions: A total of 786 papers belonging to 30 medical branches are currently included in this library, but this tool can be progressively improved by adding emerging papers. For each manuscript, all the bibliographic elements are provided, for fast access to the full text. The papers could be sorted by medical branches or by time from publication. The present library depicts the state of the art in gender-specific scientific literature and is a useful tool to perform gender-specific bibliographic research. It also promotes the diffusion of a gender-specific culture, by allowing the cooperation between researchers belonging to different medical and non-medical branches.

Conclusion: The Gender-specific medical library is a useful tool to have a quick look into gender-specific insights in several medical branches. It could be useful to diffuse and promote the study of gender-specific variables in medical research.

OC21 ORAL COMMUNICATIONS

On the interplay between the medicine of Hildegard of Bingen and gender medicine: the role of estrogen receptor as an example of biodynamic interface

Sabrina Melino[1], Elisabetta Mormone[2]
[1]Campus Biomedico, Research Unit of Philosophy of Science and Human Development, Faculty of Science and Technology for Humans and the Environment, Rome, Italy, [2]Institute for Stem-cell Biology, Regenerative Medicine and Innovative Therapies, Fondazione IRCCS Casa Sollievo della Sofferenza, Foggia, Italy

Hildegard of Bingen (1098-1179) interpreted the origins of chronic disease highlighting and anticipating, although only in a limited fashion, the importance that complex interactions among numerous genetic, internal milieu and external environmental factors, have in determining the disease phenotype. Today we recognize those factors, capable of mediating the transmission of messages between human body and environment and vice versa, as biodynamic interfaces. We analyzed, in the light of modern scientific evidence, Hildegard of Bingen's medical approach and her original humoral theory, in order to identify possible insights included in her medicine that could be referred to in the context of modern evidence-based medicine. In particular, the abbess's humoral theory suggests the identification of biodynamic interfaces with sex hormones and their receptors. Estrogen receptors, indeed, are found in regions of the brain involved in emotional and cognitive regulation, controlling the molecular mechanism of brain function. Estrogen receptors are involved in the regulation of the hypothalamic-pituitary-adrenal axis and in the epigenetic regulation of responses to physiological, social and hormonal stimuli. Furthermore, estrogen affects gene methylation on its own and related receptor promoters, in discrete regions of the developing brain. This scenario was strikingly perceived by the abbess in the XII century, and depicted as a complex interplay among different humors and flegmata that she recognized to be sex-specific and environmentally regulated. Considering the function played by hormones and the theory of biodynamic interface we might recognize the Hildegardian insights as the first attempt to describe modern holistic medicine based on sex. Hildegard anticipated a concept of pathogenesis that sees a central role for endocrinology in sex specific disease. Furthermore, estrogens and estrogen receptors could represent a good example of molecular interface capable of modulating the interaction between the organism internal milieu and the environmental factors.

OC22 ORAL COMMUNICATIONS

Regional differences in knowledge and perception of cardiovascular risk among women in Italy

Silvia Maffei[1], Martino Deidda[2], Susanna Sciomer[3], Lucia Cugusi[4], Christian Cadeddu[2], Sabina Gallina[5], Michela Franchini[6], Giovanni Scambia[7], Anna Vittoria Mattioli[8], Nicola Surico[9], Giuseppe Mercuro[2], Antonella Meloni[1]

[1]Fondazione G. Monasterio CNR-Regione Toscana, Pisa, Italy, [2]University of Cagliari, Cagliari, Italy, [3]Sapienza University, Rome, Italy, [4]University of Sassari, Sassari, Italy, [5]University of Chieti-Pescara, Chieti, Italy, [6]National Research Council, Pisa, Italy, [7]Fondazione Policlinico Universitario A. Gemelli, IRCCS, Rome, Italy, [8]University of Modena and Reggio Emilia, Modena, Italy, [9]Università Piemonte Orientale, Novara, Italy

The IGENDA (Italian GENder Differences in Awareness of cardiovascular risk) study was a multicentre study carried out in collaboration with the Italian Society of Obstetrics and Gynecology and the Italian Society of Cardiology to evaluate knowledge and perception of cardiovascular risk among Italian women. We report the results of the analysis performed stratifying by geographical area: North, Centre, and South of Italy.

An anonymous questionnaire was completed by 4438 women (North:1178; Centre:1469; South and Islands:1791).

Frequency of cardiovascular disease (CVD) was significantly lower among Central Italian (CI) women versus both Northern Italian (NI) women (1.6 vs 3.5%; $p = 0.012$) as well as Southern Italian (SI) women (1.6 vs 3.4%; $p = 0.009$).

The first two questions were multiple-choice questions. The women who selected the CVD as the biggest health problem for people of same age and gender were more frequently from North Italy than from Center Italy (25.0 vs 18.3%; $p = 0.003$) and South Italy (25.0 vs 19.9%; $p < 0.0001$). The women who selected the CVD as the greatest danger to their own health in the future were more frequently from North Italy than from Center Italy (31.0 vs 22.1%; $p < 0.0001$) and South Italy (31.0 vs 22.5%; $p < 0.0001$).

The other questions were simple yes/no questions. Respectively, the 69.1%, 72.0%, and 68.7% of NI, CI, and SI women correctly identified heart disease as the biggest underlying cause of death in Italy (no significant difference among geographical areas: $p = 0.117$). The frequency of a positive answer to the question "CVD causes more victims than breast cancer in Italy" was significantly higher among CI women versus both NI women (75.9 vs 66.9%; $p < 0.0001$) and SI women (75.9 vs 61.1%; $p < 0.0001$) and among NI versus SI women ($p = 0.006$).

A single-item measure of subjective health "How would you rate your current health status in a scale from 0 to 10?" was used to assess self-ratings of health (SRH). CI women reported a significantly higher SRH than NI women (7.01 ± 1.66 vs 6.56 ± 2.21; $p < 0.0001$) and SI women (7.01 ± 1.66 vs 6.72 ± 1.84; $p < 0.0001$).

In CI women the lower prevalence of CVD is reflected on a better SRH in comparison to NI and SI women. However, CI women are those for who there is the strongest need to empower knowledge and perception of CVD as a real health problem and not just as a potentially lethal threat.

OC23 ORAL COMMUNICATIONS

How to measure gender in health research? Theoretical framework and proposition of operationalization for the Swiss context

Joana Le Boudec[1], Diane Auderset[1], Joëlle Schwarz[1], Carole Clair[1]

[1]Health and Gender Unit, Department of education, research and innovation, Center for Primary Care and Public Health (Unisanté), University of Lausanne, Lausanne, Switzerland

Introduction: Biological sex and social gendered position have an effect on health at different levels. Stratifying results by sex is insufficient when inferring the effect of gender on health outcomes. The use of the binary sex variable masks social gender and oversees intermediate factors – e.g economic inequities. Gender is seldom measured because of the complexity of the concept and the limited existing quantitative tools. A common theoretical framework linking the gender concept to health is needed and may encourage its measure and enhance interoperability of research.

Aim: To develop a measure of gender in health for the Swiss context, based on a theoretical framework and a clear concept.

Methodology: We conducted a comprehensive literature review on the concept of gender and its effects on health, and on existing quantitative measures of gender in health. We built an experts group including sociologists, philosophers, anthropologists, epidemiologists, psychiatrists, cardiologists, and internists, to discuss and conceptualize an applied approach to measure gender.

Results: The literature review identified different measures of gender in health research and allowed to establish a theoretical framework. The framework retained a gender system with three levels - individual, interactional, institutional – influencing health through five different pathways: differential exposures, health behaviors, impacts on accessing care, gender-biased health-care systems, and finally gender-biased research, institutions, and data collection. We then proposed gender variables and specific related questions to grasp the different dimensions and pathways. This led to the creation of a toolbox for health researchers. Expert discussions led to the following agreements: the concept of gender is complex, and its measure depends on the research topic; networking should lead to a lobby able to influence politics, as a strong position for gender inclusion in research is currently lacking in Switzerland. Concrete collaborations led to integrating gender

indicators in the follow-up of an ongoing cohort.

Conclusion: A toolbox for gender measure is available for Swiss health researchers, providing methods to be tailored to specific health topics. The project led to the integration of gender into an ongoing cohort.

OC24 ORAL COMMUNICATIONS

Complexity of couples in assisted reproductive technologies (ARTs): frailties and psychological resources of men and women compared

Concetta Polizzi[1], Giovanna Perricone[1], Antonio Perino[2], Gaspare Cucinella[2], Domenico Gullo[3], Sofia Burgio[1], Fabrizia Rubino[4], Giuseppe Gullo[2]

[1]University of Palermo and Società Italiana di Psicologia Pediatrica, [2]Azienda Ospedaliera Ospedali Riuniti (AOOR) Villa Sofia - Cervello, IVF UNIT, University of Palermo, Palermo, Italy, [3]Member of Technical Panel on Gender Medicine, Sicily Regional Health Service and Gyn/Obst. SSD/MED, 40 Dep. PROMISE University of Palermo, Palermo, Italy, [4]Maria Eleonora Hospital, Palermo, Italy and Società Italiana di Psicologia Pediatrica

Background: The biopsychosocial complexity that characterizes couples in ARTs, as a factor of procreative success and pregnancy, targets the psychological intervention towards the assessment of the criticalities and resources related to the psychic functioning of individual component of the couple, considering the different configurations in reference to the gender.

Methods: This study explored resources and fragility in the individual components of 85 couples, in the pre-covid period. The study took place at IVF Center - Villa Sofia Cervello Hospital-Palermo, during the therapeutic counseling intervention, in a phase immediately preceding the ovarian pick-up. The tools used by the psychologist were a retrospective diary and a coding scheme applied to the diary and divided into specific indicators: resources and criticality. Analysis of variance (MANOVA) was used to explore differences between criticalities and resources according to "gender" and "age"; to measure the correlations between resources and criticalities of women and men r of Pearson index was performed.

Results: The mean age of women was 34.5 years (SD =3.9) and of men was 38.4 years (SD=4.3); 50% of the couples had already undergone the procedures. The MANOVA highlighted significant differences gender based in reference to these criticalities: dysfunctional defense mechanisms ($F = 7.89$, $p = .006$) and exclusive focus on procedures ($F = 4.14$, $p = .043$); these frailties are, in fact, much more present in women. Regarding resources, no significant differences were detected according to gender, although some resources (child project and sense of reality) appear more present in men. Significant differences were highlighted for almost all the resources found ($p = .001$), which appear to be more present especially in subjects <40 years old. Correlational analyzes highlighted numerous significant associations between the criticalities of women and men, for example: dysfunctional defense mechanisms co-present in couples ($r = .55$, $p = .001$), return to negative past experiences in women and negative emotionality in men ($r = 1$, $p = .001$).

Conclusions: In the ARTs paths is essential monitor the relationship between psychological resources and frailties of the couples, to promotes the management of stress caused by the procedures.

OC25 ORAL COMMUNICATIONS

Sex and gender differences in human gut microbiota composition and diversity

Ilire Rrustemi[1], Carole Clair[1], Joëlle Schwarz[1]

[1]Health and Gender Unit, Department of Education, Research and Innovation, Center for Primary Care and Public Health (Unisanté), University of Lausanne, Lausanne, Switzerland

Background: Sex is a factor influencing microbiota composition, along with other factors such as diet, medication, metabolism and host genotype. Sex differences in gut microbiota composition could partly explain different predisposition to diseases in men and women. Influence of hormones in bacterial composition of the gut is one aspect of sex influence. Many studies explored the link between socioeconomic and environmental factors and gut microbiota composition but the role of gender often misses. We will assess sex differences on gut microbiota composition and diversity, as well as the links with different gendered related factors, mainly diet, smoking, socioeconomic status, and physical activity. Finally, we will explore which factors explain the variation in gut microbiota.

Methods: We use 16S-rRNA sequencing and measure diversity compounds to analyze the microbiota composition of three different patient populations (type 2 diabetes, multiple sclerosis and bipolar disorders). Food Frequency Questionnaires depict diet composition. Statistical analysis compares microbiota between male and female patients in a cross-sectional design (1 time-point samples). The smoking status, diet, socio-economic status and physical activity compose the co-variates.

Results: Preliminary results of our analysis will explore the differences in microbiota composition at the phyla level and alpha- & beta-diversity in the 3 populations of patients pooled, according to sex and adjusted to co-variates.

The addition of a sex-gender perspective to the gut microbiota research will help precise methods and interpretation of results and explore the pathways, which lead environmental and social exposure to biological changes. The results of this study will hopefully contribute to avoid gender bias and better target and personalize future research and treatments.

OC26 ORAL COMMUNICATIONS

Gender-related factors and out-of-hospital cardiac arrest incidence in women and men: analysis of a population-based cohort study in the Netherlands

Robin Smits[1], Laura van Dongen[2], Marieke Blom[2], Hanno Tan[2;3], Irene van Valkengoed[1]

[1]Amsterdam UMC, University of Amsterdam, Department of Public Health, Amsterdam Public Health Research Institute, Amsterdam, The Netherlands, [2]Amsterdam UMC, Academic Medical Centre, University of Amsterdam, Department of Clinical and Experimental Cardiology, Heart Centre, Amsterdam Cardiovascular Sciences, Amsterdam, The Netherlands, [3]Netherlands Heart Institute, Utrecht, The Netherlands

Background: The incidence of out-of-hospital cardiac arrest (OHCA) differs consistently between women and men. Besides sex-related factors, OHCA risk may relate to gender-related factors. We explored the association of selected gender-related factors with OHCA incidence in women and men.

Methods: We combined data on emergency medical services (EMS)-attended OHCA with individual-level data from all women and men aged ≥ 25 years living in North Holland, the Netherlands. We estimated associations between employment status, primary earner status, living with children and marital status and OHCA incidence with Cox proportional hazards models stratified by sex and adjusted for age and socioeconomic status. To determine if metabolic factors explain the associations, we added hypertension, diabetes mellitus and dyslipidaemia to the models. Population attributable fractions (PAF) for all gender-related factors were calculated.

Results: All four gender-related factors were associated with OHCA incidence (e.g., unemployed vs. employed HR 1.98, 95% CI 1.67-2.35 in women and HR 1.60, 95% CI 1.44-1.79 in men). In both sexes, those unemployed, those not the primary earner, those living without children, and married or divorced individuals had an increased OHCA risk. The PAF ranged from 4.9 to 40.3 in women and from 4.4 to 15.5 in men, with the highest PAF for employment status in both sexes. Metabolic risk factors did not explain the observed associations.

Conclusion: Gender-related factors were associated with risk of OHCA and contributed substantially to OHCA burden at population level, particularly in women. Employment status contributed most to the OHCA burden.

OC27 ORAL COMMUNICATIONS

Gender inequalities in access to healthcare services: data from the Italian National Outcome Evaluation Programme

Marcello Cuomo[1], Chiara Mencancini[1], Eliana Ferroni[2], Paola D'Errigo[3], Paola Colais[4], Alessandra Burgio[5], Elisa Guglielmi[1], Stefano Rosato[3], Marina Davoli[4], Giovanni Baglio[1]

[1]AGENAS, Rome, Italy, [2]Azienda Zero del Veneto, Padua, Italy [3]Istituto Superiore di Sanità, Rome, Italy, [4]DEP Lazio, Rome, Italy, [5]ISTAT, Rome, Italy

Introduction: An equal access to health care is one of the main goals of the National Health Service. Since men and women show different symptoms and clinical responses to the same diseases, an organized healthcare system should strive to guarantee equality in the access to appropriate health procedures.

Aim: The National Outcome Evaluation Programme is a yearly collection of performance indicators of Italian public hospitals. For the 2021 edition, 18 indicators representing 5 different clinical areas (cardiovascular, oncologic, orthopaedic, cerebrovascular and respiratory) were stratified by gender, due to scientific evidences linking them to a high potential risk of gender inequality.

Methods: Data were collected from the 2020 Hospital Information System. A risk adjustment model on patients' comorbidities was implemented for the results, and ratio measurements for gender were produced.

Results: Major inequality risks for women were observed for the cardiovascular area. The proportion of coronary interventions executed within 90 minutes from hospital access for myocardial infarction (MI) was lower for female patients (40.5% vs 53.4%), suggesting that differences in symptoms could lead to longer times to MI diagnosis; a higher rate of mortality within 30 days from coronary bypass surgery was also observed for the same group (3.0% vs 1.6%). On the other hand, male patients scored major risks for the orthopaedic area, with a lower proportion of hip fracture surgeries performed within 48 hours from hospital access (45.7% vs 51.8%) and a related higher mortality rate within 1 year from surgery (28.5% vs 16.2%).

Conclusions: The results showed the presence of gender inequality for different clinical conditions; thus, current and future national health policies should account for this, and promote more effective equity actions.

OC28 ORAL COMMUNICATIONS

Sex differences in patterns of treatment and incidence of outcomes in kidney transplant recipients

Maria Lucia Marino[1], Eliana Ferroni[2], Marco Finocchietti[1], Alessandro Rosa[1], Marco Massari[3], Andrea Ricci[4], Silvia Pierobon[1], Arianna Mazzone[5], Stefano Ledda[6], CESIT PROJECT, Valeria Belleudi[1]

[1]Department of Epidemiology, Lazio Regional Health Service, ASL Roma 1, Rome, Italy, [2]Azienda Zero of the Veneto Region, Padua, Italy, [3]National Center for Drug Research and Evaluation, [4]Italian National Transplant Center, Istituto Superiore di Sanità, Italy, [5]ARIA SpA, Milan, Italy, [6]Sardinia Regional Health Department, Cagliari, Italy

Background: Immunosuppression management after kidney transplantation continues to evolve, with an increasing number of agents available for use in various combinations allowing greater choice and individualization of immunosuppressive therapy. The possible influence of sex on benefit-risk profile of immunosuppressive therapy is an issue of medical importance. The aim of this study was to analyse patterns of treatment and incidence of outcomes in kidney transplant recipients.

Methods: A multicentre retrospective observational study involving 4 Italian regions was conducted, based on the national transplant Information system and regional healthcare claims data. Specifically, regional analytical datasets of incident patients undergoing kidney transplantation in the years 2009-19 were created using a distributed analysis tool. Differences in donor and recipient characteristics as well as pattern of immunosuppressive treatment pattern by sex were analysed. Incidence of outcomes (mortality, reject, diabetes and infection) were compared between males and females using multivariate Cox models (HR; CI95%)

Results: A total of 4,029 kidney recipients, 35.5% female (of which 331 in fertility age), were considered. No differences emerged in terms of recipient and donor age, dialysis history and indication for transplant was showed. As expected, the clinical history was different by sex, with a lower comorbidity index value in women than men; in particular, cardiac diseases (25.9% vs 16.6%) and diabetes (15.5% vs 9%) were more frequent in men. Immunosuppressive therapy patterns were comparable by sex, the most commonly prescribed regimen was triple therapy: tacrolimus+mycophenolato+steroids. After adjusting for therapy and donor/recipient characteristics, a higher risk of infection was observed in female respect male (HR = 1.33; 1.16-1.53); no difference was found for the other study outcomes.

Conclusions: Our results show no differences between males and females in terms of treatment pattern and outcomes, except for incidence of infection. Further studies are needed to better understand the impact of sex and hormones on drug responses in order to tailor pharmacological treatment during various life stages, including reproductive and post-menopausal phases.

OC29 ORAL COMMUNICATIONS

Differing perioperative outcomes among men and women, a cohort study

Elsa Hägglöf[1], Emma Larsson[1], Max Bell[1], Linn Hallqvist[1]

[1]Karolinska Institutet, Department of Physiology and Pharmacology, Stockholm, Sweden

Introduction: Since previous studies have reported disparities between female and male patients in several medical fields it is of interest to investigate if similar differences in outcomes exist in the less studied field of surgery and perioperative medicine.

Aims: Comparing patient characteristics between female and male patients selected for surgery and to investigate whether there are differences in postoperative mortality.

Material and methods: This observational multicentre cohort study included a population of 231,358 patients undergoing orthopedic, gastrointestinal, vascular, pulmonary or neurosurgery in Sweden between 2007 and 2014. Data regarding surgical procedures, baseline characteristics and outcomes was retrieved from Orbit, the surgical planning system, the Swedish national patient register and the Swedish cause of death register. Primary outcome was 30-day mortality. Associations between patient sex and 30-day mortality were analyzed using logistic regression and expressed as odds ratios (OR) with corresponding 95% confidence intervals (CI).

Results: The cohort consisted of 53.5% female patients. Females were older while co-morbidities were more common in males. A total of 5,474 (2.4%) patients died within 30 days after surgery. Multivariable analysis showed that males had an increased risk of 30-day mortality compared to females (OR: 1.39, 95% CI: 1.31-1.48). Multivariable analysis on each surgery type separately showed increased risk of 30-day mortality in males after orthopedic surgery compared to females (OR: 2.07, 95% CI: 1.90-2.25) but no significant sex difference in other surgery types.

Conclusions: Male patients were at larger risk of postoperative mortality and this difference was mainly driven by the large male excess mortality following orthopedic surgery, the only surgery type where a significant sex difference in mortality between men and woman was actually detected. This implies both that men could benefit from increased postoperative monitoring and that female sex perhaps should be assessed as a risk reduction in pre-operative scoring.

OC30 ORAL COMMUNICATIONS

Sex differences in the contribution of risk factors to the population burden of chronic kidney disease across ethnic groups. The healthy life in an urban setting study

Frouke Kingma[1], Irene van Valkengoed[1], Vianda Stel[2], Kitty Jager[2], Bert-Jan Van den Born[3], Eric Moll van Charante[4], Brechje Huisman[5], Frans van Ittersum[6], Henrike Galenkamp[1], Liffert Vogt[6]

[1]Public and Occupational Health, [2]Department of Medical Informatics, [3]Department of Internal & Vascular Medicine, [4]Department of General Practice, [6]Nephrology, Amsterdam, The Netherlands,[5]Slingeland, Internal Medicine, Doetinchem, The Netherlands

Background: Globally, chronic kidney disease (CKD) prevalence is higher in women than men. Prevention at population level is often embedded within cardiovascular risk management and focuses on hypertension, diabetes, hypercholesterolemia and smoking. However, the contribution of these factors to the burden of CKD may vary in men and women, and across ethnic groups. Therefore, we determined to what extent hypertension, diabetes, hypercholesterolemia and smoking contribute to prevalent CKD in men and women across ethnic groups.

Methods: We carried out a cross-sectional analysis of baseline data (2011-2015) from the multi-ethnic, population-based Healthy Life in an Urban Setting cohort in The Netherlands. We included 9047 men and 12 386 women of Dutch, South Asian Surinamese, African Surinamese, Ghanaian, Turkish and Moroccan background aged 18-70. Prevalent CKD stage 3-5 and 1-5 were defined according to the KDIGO 2012 CKD guideline. The age-adjusted contribution of diabetes, hypertension, hypercholesterolemia and smoking to the burden of prevalent CKD was estimated by calculating the population-attributable fraction (PAF) in men and women across ethnic groups.

Results: Hypertension contributed most to CKD in men and women, followed by diabetes and hypercholesterolemia. No PAF could be calculated for smoking. The contribution of risk factors to the observed CKD stage 3-5 prevalence was similar in men and women overall (e.g. 52.7% vs. 49.3% for hypertension in men and women respectively), with a heterogeneous pattern of sex differences across ethnic groups. Prevalence would theoretically be reduced from 1.7 to 0.87% in men and 1.3 to 0.69% in women if all risk factors had been prevented. For CKD stage 1-5, the contribution of risk factors was higher in men than women overall (17.3-55.3% in men and 10.0-33.8% in women for the different factors) and across ethnic groups. In some subgroups, the combination of all risk factors contributed relatively little, e.g. 27.7% and 31.2% in Moroccan and Turkish women respectively.

Conclusions: Hypertension, diabetes and hypercholesterolemia contribute significantly to prevalent CKD in men and women across ethnic groups. However, for prevention of early stages of CKD, focusing on these risk factors only might be of less benefit to (subgroups of) women.

OC31 ORAL COMMUNICATIONS

Sex and gender aspects in diabetes: focus on access to health care and cardiovascular outcomes

Teresa Gisinger[1], Zahra Azizi[2], Pouria Alipour[2], Jürgen Harreiter[1], Valeria Raparelli[3,4,5], Karolina Kublickiene[6], Maria Trinidad Herrero[7], Colleen Norris[5,8], Khaled El Emam[9,10,11], Louise Pilote[2,12], Alexandra Kautzky-Willer[1,13]

[1]Department of Internal Medicine III, Division of Endocrinology and Metabolism, Gender Medicine Unit, Medical University of Vienna, Vienna, Austria, [2]Centre for Outcomes Research and Evaluation, [12]Divisions of Clinical Epidemiology and General Internal Medicine, McGill University Health Centre Research Institute, Montreal, Canada, [3]Department of Translational Medicine, [4]University Center for Studies on Gender Medicine, University of Ferrara, Ferrara, Italy, [5]Faculty of Nursing, University of Alberta, Alberta, Canada, [6]Department of Clinical Science, Intervention, and Technology (CLINTEC), Section for Renal Medicine, Karolinska Institute and Karolinska University Hospital, Stockholm, Sweden, [7]Clinical & Experimental Neuroscience (NiCE-IMIB-IUIE), School of Medicine, University of Murcia, Murcia, Spain, [8]Heart and Stroke Strategic Clinical Networks-Alberta Health Services, Alberta, Canada, [9]Children's Hospital of Eastern Ontario Research Institute, Ottawa, Canada, [10]Faculty of Medicine, University of Ottawa, Ottawa, Canada, [11]Replica Analytics Ltd, Ottawa, Canada, [13]Gender Institute La Pura, Gars am Kamp, Austria

Aims: The importance of sex and gender on chronic diseases is increasingly recognized. We aimed to elucidate how sex and gender influence the access to health care and affect cardiovascular (CV) outcomes of diabetes mellitus (DM) individuals across different countries.

Methods: The Canadian Community Health Survey and European Health Interview Survey, were analyzed. A composite measure of socio-cultural gender for each country using the GENESIS-PRAXY methodology (i.e. principal component analysis-derived propensity score) was constructed (range: 0-1; higher score identifying gender roles and relations traditionally ascribed to women). The associations of the country-specific gender score and biological sex with HbA1c and blood sugar measurements, as well as the prevalence of self-reported heart disease, stroke, and hospitalization were analyzed with linear regression. European countries were stratified based on their Gender Inequality Index (GII) (i.e., low versus medium-high GII) with higher GII identifying the existence of greater gender inequality.

Results: Canadian DM females more often underwent

HbA1c monitoring than males (OR = 1.26, 95% CI: 1.01-1.58), while European female individuals were less likely to have their blood sugar measured than male counterparts (OR = 0.88, 95% CI: 0.79-0.99). Older age, hypertension, being widowed or divorced, and lower income were associated with an increased prevalence of self-reported heart disease and stroke, and rate of hospitalizations in both the overall and sex-stratified models, regardless of country. A higher gender score in both populations was associated with less frequent diabetes monitoring. Additionally, independent of sex, higher gender scores were associated with higher prevalence of self-reported heart disease, stroke, and hospitalization in all countries albeit European countries with medium-high GII, conferred a higher risk of all complications and hospitalization rates than low GII countries.

Conclusion: Regardless of sex, DM individuals with characteristics typically ascribed to women and those living in countries with greater gender inequality exhibited poorer DM care and greater risk of CV complications and hospitalizations.

OC32 ORAL COMMUNICATIONS

Lifestyle as a risk factor for endocrine diseases: does gender matter? A cross-sectional study

Marta Bianchini[1], Giulia Puliani[1], Rosa Lauretta[1], Alfonsina Chiefari[1], Marilda Mormando[1], Irene Terrenato[2], Marialuisa Appetecchia[1]

[1]Oncological Endocrinology Unit, [2]Biostatistics and Bionformatic Unit, IRCCS Regina Elena National Cancer Institute, Rome, Italy

Introduction: In the context of Gender Medicine, some aspects of lifestyle as alcohol, smoking, lack of physical activity are well studied because they are influenced by gender and contribute to determining the health of women and men. These gender-related risk factors have not been sufficiently investigated in the endocrine setting. For this reason, this study aimed to evaluate gender difference in the determinants of health and their impact on endocrine diseases.

Methods: This is a one-year cross-sectional study, enrolling all patients referring for the first time to our Oncological Endocrinology Unit, between January and December 2019. We collected data on diseases and gender-related health determinants.

Results: We enrolled 1,107 consecutive patients (mean age, 56.8 ± 15.0 years; 77% females). In our population women had a higher socio-cultural level and followed a healthier lifestyle: alcohol and tobacco consumption were lower in females, and women had lower BMI. BMI was a risk factor for endocrine cancer [OR = 1.07 (95% CI:1.02-1.12) p = 0.003], while physical activity was a protective factor [OR = 0.45 (95% CI: 0.24-0.84) p = 0.013]. A gender-stratified analysis demonstrated that a higher BMI was a risk factor in women and physical activity was a protective factor in men. Smoking and alcohol were not risk factors for endocrine malignancies, while tobacco consumption was a risk factor for non-endocrine cancers [OR = 1.29 (95% CI: 1.01-1.64) p = 0.041].

Discussion: Gender is a health determinant, able to affect lifestyle and habits. Physical activity and BMI seem to be risk factors for endocrine malignancies, in addition to the already known risk factors for thyroid cancer. Interestingly these two parameters have a different impact according to gender, which should be considered in lifestyle interventions and patients' global assessment, also in endocrine patients.

OC33 ORAL COMMUNICATIONS

Higher testosterone is associated with increased inflammatory markers in women with SARS-CoV-2 pneumonia: preliminary results from an observational study

Elisa Maseroli[1], Vincenza Di Stasi[1;2], Giulia Rastrelli[1], Francesco Inglese[3], Massimiliano Beccaria[3], Martina Garuti[3], Fabio Spreafico[3], Giulia Cervi[3], Graziana Francesca Greco[3], Antonietta Pecoriello[3], Sarah Cipriani[1], Irene Scavello[1;4], Mario Maggi[5], Linda Vignozzi[1]

[1]Andrology, Women's Endocrinology and Gender Incongruence Unit, Careggi University Hospital, Florence, Italy, [2]USL Toscana Centro, Medicina Interna, Italy, [3]Intensive Care Respiratory Unit, Carlo Poma Hospital, Mantova, Italy, [4]U.F.C.A.T., Azienda Sanitaria USL Toscana Centro, Italy, [5]Department of Experimental Clinical and Biomedical Sciences "Mario Serio", University of Florence, Florence, Italy

Purpose: Objective of this study was to assess the association between testosterone (T) levels and biochemical markers in a cohort of female patients admitted for SARS-CoV-2 infection in a respiratory intensive care unit (RICU).

Methods: A consecutive series of 17 women affected by SARSCoV-2 pneumonia and recovered in the RICU of the Hospital of Mantua were analyzed. Biochemical inflammatory markers as well as total testosterone (TT), calculated free T (cFT), sex hormone-binding globulin (SHBG), and luteinizing hormone (LH) were determined.

Results: TT and cFT were significantly and positively associated with PCT, CRP, and fibrinogen as well as with a worse hospital course. We did not observe any significant association between TT and cFT with LH; conversely, both TT and cFT showed a positive correlation with cortisol. By LOWESS analysis, a linear relationship could be assumed for CRP and fibrinogen, while a threshold effect was apparent in the relationship between TT and procalcitonin, LDH and ferritin. When the TT threshold value of 1 nmol/L was used, significant associations between TT and PCT, LDH or ferritin were observed for values above this value. For LDH and ferritin, this was confirmed also in an age-adjusted model. Similar results were found for the association of cFT with the inflammatory markers with a threshold

effect towards LDH and ferritin with increased LDH and ferritin levels for values above cFT 5 pmol/L. Cortisol is associated with serum inflammatory markers with similar trends observed for TT; conversely, the relationship between LH and inflammatory markers had different trends.

Conclusion: Opposite to men, in women with SARS-CoV-2 pneumonia, higher TT and cFT are associated with a stronger inflammatory status, probably related to adrenal cortex hyperactivity,

OC34 ORAL COMMUNICATIONS

The impact of gender on the effectiveness of laboratory data: the case study of SARS-CoV-2 serology

Rossella Tomaiuolo[1], Chiara Di Resta[1], Chiara Sacco[1], Marco Viganò[2], Carlo Federico Perno[3], francesco Giuffrida[4], Giuseppe Banfi[1;2]

[1]Università Vita-Salute San Raffaele, Milan, Italy, [2]IRCCS Galeazzi Orthopaedic Institute, Milan, Italy, [3]Ospedale Pediatrico Bambin Gesù, Rome, Italy, [4]Cooperativa OSA

The third-millennium laboratory medicine perspective aims to improve the efficiency of the patient's outcome in terms of health and resources used, placing the patient at the centre of the diagnostic-therapeutic process. In this sense, the objective of Public Health is also remodeled, focusing not only on increasing the number of individuals who can benefit from a specific intervention but also on welfare strategies guided by the analysis of the case mix and by the stratification of the needs of the population.

In scenarios of vaccine scarcity or contexts of organizational complexity, such as the SARS-CoV-2 pandemic, it was necessary to define prioritization strategies for the allocation of vaccine doses in compliance with the criterion of equity and efficiency of health resources, also considering that the efficacy of COVID-19 vaccines has been observed to depend on sex and gender. In particular, the immune responses are modulated by sex hormones and ageing. Therefore, data disaggregated are essential to carry out effective interventions against SARS-CoV-2 from a biomedical and social perspective.

At this scope, the impact of sex and gender on immune response against SARS-CoV-2 was evaluated in a large cohort of subjects (1211 from 23 to 99 years old) adhering to the Italian vaccination campaign against SARS-CoV-2. In particular, the antibody titer profiles of the 97 elderly vaccinated subjects (age >90 years old) were evaluated and compared with profiles obtained in the general population (age 23-69 years old). The antibody titer was tested in both study groups by the Elecsys Anti-SARS-CoV-2 assay (Roche) specific to the viral SARS-CoV-2 nucleocapsid protein and the Elecsys SARS-CoV-2-S (Roche) against the receptor-binding domain of the viral spike protein.

This study suggests that distinct antibody response profiles vary based on anti-N serostatus, age, and sex. This is the first study providing post-vaccination serological data in subjects aged 90+ years old to the best of our knowledge. The data obtained could impact the organization of the vaccination campaign (i.e., prioritization strategies, administration of additional doses) and the factors that facilitate intentions to receive the vaccination (i.e., vaccine effectiveness).

OC35 ORAL COMMUNICATIONS

Sex and gender impact mental and emotional well-being during COVID-19

Teresa Gisinger[1], Rubee Dev[2], Alexander Kautzky[3], Jürgen Harreiter[1], Valeria Raparelli[4], Karolina Kublickiene[5], Maria Trinidad Herrero[6], Colleen Norris[7], Kim L. Lavoie[8], Louise Pilote[9], Alexandra Kautzky-Willer[1,10]

[1]Department of Internal Medicine III, Division of Endocrinology and Metabolism, Gender Medicine Unit, Medical University of Vienna, Vienna, Austria, [2]Faculty of Nursing, University of Alberta, Alberta, Canada, [3]Department of Psychiatrics and Psychotherapy, Medical University of Vienna, Vienna, Austria, [4]Department of Translational Medicine, University of Ferrara, Ferrara, Italy, [5]Department of Clinical Science, Intervention, and Technology (CLINTEC), Section for Renal Medicine, Karolinska Institute and Karolinska University Hospital, Stockholm, Sweden, [6]Clinical & Experimental Neuroscience (NiCE-IMIB-IUIE), School of Medicine, University of Murcia, Murcia, Spain, [7]Heart and Stroke Strategic Clinical Networks-Alberta Health Services, Alberta, Canada, [8]Department of Psychology, University of Quebec at Montreal (UQAM) and Montreal Behavioural Medicine Center, Hopital du Sacre-Coeur de Montreal, CIUSSS-NIMI, Montreal, Canada, [9]Montreal, Divisions of Clinical Epidemiology and General Internal Medicine, McGill University Health Centre Research Institute, Montreal, Canada, [10]Gender Institute La Pura, Gars am Kamp, Austria

Objective: The COVID-19 pandemic has influenced mental health drastically. Therefore, our aim was to investigate whether biological sex and sociocultural gender-related factors were associated with mental health during the COVID-19 pandemic.

Methods: The International COVID-19 Awareness and Responses Evaluation (iCARE) Study is an international multi-wave cross-sectional observational cohort study of public awareness, attitudes, and responses to public health policies (www.icarestudy.com). Survey data collection began in March 2020 using convenience snowball sampling (globally) and parallel representative sampling in targeted countries. Associations between biological sex, sociocultural gender and mental health (defined by the following reported feelings: "nervous, anxious or worried"; "sad, depressed or hopeless"; "irritable, frustrated and angry"; "lonely or isolated") were assessed using multivariate logistic regression

models only for the European population.

Results: A total of 12,300 iCARE European participants (29.39% males) were analyzed. Overall, more than 50% had a graduate or postgraduate degree (51.30%), were employed (67.93%), had self-reported incomes in the middle third (56.48%) and at least one child (51.92%). Positive associations were found between female sex and "feeling nervous, anxious or worried" (OR = 3.2, p < 0.001, 95%CI 1.87-5.63) and "feeling sad, depressed or hopeless" (OR 1.8, p = 0.031, CI 1.05-3.05). Male sex was more likely associated with "feeling irritable, frustrated and angry" (OR =1 .8, p = 0.04, 95%CI 1.03-2.99). Concerning gender, a negative correlation between being employed and "feeling lonely or isolated" (OR = 0.26, p < 0.001, 95%CI 0.11-0.59) was observed in the female cohort whereas in the male cohort "feeling more irritable, frustrated and angry" was reported (OR: 2.0, 95% CI: 1.03-2.99, p < 0.001).

Conclusion: Sex and gender differences exist in the emotional responses during COVID-19 pandemic. Especially, within the female cohort, unemployment is negatively associated with mental health. Therefore, this study suggests more targeted psychological and social support for females who are employed during the pandemic.

OC36 ORAL COMMUNICATIONS

Infection prevention and control for shelters during military aggression of the Russian Federation in Ukraine: do the sex and gender matter?

Kateryna Ostrovska[1], Dmytro Stepanskyi[2]

[1]The Ukrainian Society for Gender and Anti-Aging Medicine, NGO, Dnipro, Ukraine, [2] Department of Microbiology, Virology, Immunology, and Epidemiology Dnipro State Medical University, , Dnipro (Dnepropetrovsk), Ukraine

On February 24, Russia launched a new military operation against Ukraine, forcing people to leave their homes seeking safety, protection, and aid. Up to 11 April 2022, 4,6M refugees have left Ukraine. As of 1 April 2022, 7,1M individuals became currently internally displaced within Ukraine, of whom women constitute a share of 59%. Displaced populations are at increased risk of communicable diseases (e.g., COVID-19, measles) primarily due to closer and more intense social mixing, low immunization coverage, poor quality shelter and water, sanitation, and hygiene conditions, and exacerbating factors such as nutritional stress.

Sex-associated susceptibility to infections and the course of diseases cannot be fully explained by hormonal and chromosomic hypotheses because of the intricacy of social and biological mechanisms, accompanied by the epidemic situation unique to each state. Thus, the infection prevention and control, and the measures addressed to the elements of infections spreading (as sources of infection, mechanisms of transmission, and susceptible persons) require reconsideration.

The desk review contains the analysis of the currently released local recommendations and best practices on infection prevention and control for shelters during military aggression. According to the available data, it's intended to predict the infection situation in Ukraine and its impact on communicable diseases levels in Europe and propose the optimal normative ensuring the sanitary and epidemic well-being of the population located in shelters, taking into consideration the specificity of requirements dictated by sex and gender.

OC37 ORAL COMMUNICATIONS

Sex-driven immune dysfunction and anxiety like behavior in adolescent rats: effect of dietary n-3 polyunsaturated fatty acid deprivation

Maria Grazia Morgese[1], Luigia Trabace[1]

[1]Dept of Clinical and Experimental Medicine, University of Foggia, Foggia, Italy

The lack of proper consumption of n-3 polyunsaturated fatty acids (PUFA) during developmental period has been reported as an important risk factor for evoking depressive-like behaviors either in rodents or in humans. Indeed, we have previously found that lifelong exposure to n-3 PUFA deficient diet in female and male rats leads to depressive-like symptoms in early adulthood. In keeping with this hypothesis and in the effort of evaluating possible sex-driven differences in the development of mood disorders induced by n-3 PUFA deficiency, we evaluated the effect of n-3 PUFA deficient diet in two behavioural paradigms of anxiety like behavior in male and female adolescent rats, such as the novelty suppressed feeding and the zero maze. We found that either male or female adolescent rats fed for their entire life with a diet poor in n-3 PUFA showed an anxiety-like profile in both tests compared to animals receiving a n-6/n-3 balanced diet. In male rats, no differences were retrived in cortical levels of GABA and glutamate, while in female n-3 PUFA deficient diet led to a reduced glutamate and increased GABA levels. Peripheral levels of these neurotransmitters paralleled these outcomes. In order to correlate these behavioral and neurochemical outcomes with peripheral immune activation, we quantified several biomarkers of glia spleen cells in treated rats, considering that spleen is crucial for neuroimmune communication and it represents a major immune organ innervated by the sympathetic nervous system, which modulates immune function. We found that n-3 PUFA deprivation induced a significant increase in spleen noradrenaline content only in female rats. Such result in female was accompanied by higher spleen expression of Glial fibrillary acidic protein (GFAP) and CD11b proteins, while no differences were identified for the proinflammatory biomarkers Tumor necrosis factor (TNF)α and Nuclear Factor kappa B (NFkB). Ultimately, plasma corticosterone levels were increased only in male rats receiving poor n-3 PUFA diet. Taken together our data indicate that deficiency

of n-3 PUFA in diet is able to induce mood disorders in adolescent rats, however this behavioural phenotype is associated with an increased immune activation only in female rats while in male such mood susceptibility is more linked to stress axis activation.

OC39 ORAL COMMUNICATIONS

Gender and estrogens as key factors in the response to immunotherapy in non-small cell lung cancer

Iris Chiara Salaroglio[1], Dario Pasquale Anobile[1], Sofia La vecchia[1], Fabrizio Tabbò[2], Francesco Passiglio[2], Paolo Bironzo[2], Joanna Kopecka[1], Luisella Righi[3], Giorgio Vittorio Scagliotti[2], Silvia Novello[2], Chiara Riganti[1]

[1]Oncology, University of Turin, Turin, Italy, [2]Medical Oncology, [3]Pathology Unit, AOU San Luigi Gonzaga, Oncology, Orbassano, Italy

The recent introduction of immune-checkpoint inhibitors (ICPI) – mainly Pembrolizumab – has improved the prognosis of non-small cell lung cancer (NSCLC) patients in 20-35% cases. Recent network meta-analyses reported a differential response to immunotherapy (IOT) between the two genders but the factors responsible for the gender-differential benefit of IOT are unknown. Our aims are to identify gender-and/or hormone-related biomarkers, predictive of ICPI response in NSCLC and build a gender-tailored IOT for NSCLC patients.

We analyzed a panel of 80 genes with NanoString technology in 42 patients treated with Pembrolizumab to identify the most significantly genes associated with better outcome. 17-β-estradiol production was analyzed by ELISA, key pathways activating ERα by immunoblot, the ERα binding to PD-L1 (programmed death-ligand 1) promoter by ChIP. Lipidome analysis was performed by GC/HPLC. Pembrolizumab effects were assessed in humanized male and female mice injected with gender-matched NSCLC lines, in terms of tumor growth and survival, intra-tumor PD-L1 expression, activation of tumor-infiltrating lymphocytes (TILs), as $CD8^+$ and NK cells. ESR1 gene, encoding for ERα, was positively associated with response to Pembrolizumab in patients. In 30 human NSCLC cell lines of female and male origin, the amount of ERα and 17-β-estradiol, , was directly related to the expression of PD-L1, suggesting a potential direct linkage. ERα transcriptionally up-regulated CD274/PD-L1 gene, with higher effects in females. EGFR downstream effectors increased the active form - phospho(Ser118) ERα -, upregulating PD-L1. Lipidome analysis also revealed differences in membrane lipids between genders, potentially affecting PD-L1 conformation and binding with PD-1. The efficacy of Pembrolizumab in humanized mice bearing NSCLC xenografts was significantly enhanced by the aromatase inhibitor letrozole that reduced PD-L1 and increased the percentage of anti-tumor $CD8^+$ and NK TILs.

The benefit was maximal in 17-β-estradiol/ERα highfemale xenografts, minimal in 17-β-estradiol/ERα lowmale xenografts.

Our data demonstrate that 17-β-estradiol/ERα status predicts the response to Pembrolizumab in NSCLC, potentially explaining the gender-related differential benefit of the IOT.

OC40 ORAL COMMUNICATIONS

Psychosocial factors as additional eligibility criteria for screening in women and men in a multi-ethnic population: the HELIUS study

Bryn Hummel[1], Ralf Harskamp[2], Renee Bolijn[1], Eric Moll van Charante[1,2], Henrike Galenkamp[1], Anja Lok[3], Paula Mommersteeg[4], Irene van Valkengoed[1]

[1]Amsterdam Public Health Research Institute, Department of Public and Occupational Health, [2]Department of General Practice, [3]Department of Psychiatry, Amsterdam UMC, University of Amsterdam, Amsterdam, The Netherlands, [4]Department of Medical and Clinical Psychology, Center of Research on Psychological Disorders and Somatic Diseases (CoRPS), Tilburg University, Tilburg, The Netherlands

Objectives: Strategies to prevent cardiovascular disease (CVD) include screening for CVD risk and management in individuals with a high CVD risk. Currently, screening eligibility is often based on risk factors from history taking, and may miss at-risk people, in particular women, in multi-ethnic populations. We analyzed whether psychosocial factors may serve as additional eligibility criteria.

Methods: We analyzed baseline data of the HEalthy LIfe in an Urban Setting study (HELIUS, 2011-2015). We included N = 10,226 (57.2% women) Dutch, South-Asian Surinamese, African Surinamese, Ghanaian, Moroccan, and Turkish women and men, aged 40-70 years living in Amsterdam, the Netherlands. Using logistic regressions, we analyzed whether psychosocial factors (socioeconomic criteria, mental health, stress, depression, and social isolation), improved prediction of high CVD risk (Systematic COronary Risk Evaluation (SCORE) estimated risk ≥ 5%) beyond current eligibility criteria from history taking (smoking, obesity, a family history of CVD). Next, we compared the predictive value across ethnic groups, using the area under the receiver-operator characteristic curve (AUC).

Results: Of all participants, 32.7% had a high CVD risk. The AUC for current criteria ranged from .581-.678 in women and .574-.631 in men. Socioeconomic criteria (employment status and educational level) improved the models for high CVD risk (e.g. the Akaike Information Criterion decreased from 5113 to 4839 in women after adding employment status). The AUC for the final model appeared higher in Moroccan and Dutch women (.809-.807) than other women (.678-.756) and Moroccan and Dutch men (.727-.721) compared to other men (.617-.680). Results were consistent when using the SCORE2 algorithm, and for several sensitivity analyses

Conclusion: Employment status and educational level

may be considered as additional eligibility criteria for CVD risk screening, in particular in women of some ethnic groups.

OC41 ORAL COMMUNICATIONS

Starting the process: a model region for gender medicine

Miriam Hufgard-Leitner[1], Angelika Bader[2], Margarethe Hochleitner[2], Alexandra Kautzky-Willer[1]

[1]Division of Endocrinology and Metabolism, Gender Medicine Unit, Department of Internal Medicine III, Medical University of Vienna, Vienna, Austria, [2]Gender Medicine & Diversity Unit, Medical University Innsbruck, Innsbruck, Austria

Background: The story of Gender Medicine is a story of brave pioneers, scientific excellence, visionary decisions and the dominant knowledge that there is still a lot to do. Currently, the pandemic has shown how important the understanding of the mutual interplay of sex and gender is on the health of the individual, health-care services and health policies. Gender Medicine has to be implemented as professional self-conception in the health care system. Therefore, we have to reach out for health-care professionals and the general population.

Methods: Carinthia is a federal state in Austria with 560.000 residents. In close collaboration with the Health Secretary of Carinthia and the Ressort for Health a model region for Gender Medicine was settled over the whole area of Carinthia. With the guidance of experts from the Medical University of Vienna and Medical University of Innsbruck a broad educational programme was developed. The general population is informed regularly by local communities organized as "healthy districts". Future caregivers are trained at the professional school for nursing, lectures in Gender Medicine are held for doctors and medicinal staff regularly. To warrant sustainability, local doctors are trained to become experts by a curriculum for Gender Medicine, to implement experts in site.

Results: The model region for Gender Medicine started in November 2021. Since then, media attention was broad. It can be assumed that newspaper articles, radio interviews and TV reports increased already awareness of Gender Medicine.

Impact of educational programmes on awareness and self-conception of Gender Medicine in health-care professionals are detected regularly.

Discussion: Gender Medicine has to step out of the ivory tower into broad application, to grow a critical mass who reaches out for the best medicinal care for all people- men, women and trans- a medicinal discipline that meets the challenges of the society, whom she serves.

OC42 ORAL COMMUNICATIONS

How to take gender into account for gender-oriented health promotion actions: the Italian experience

Luca Busani[1], Eliana Ferroni[2], Lilia Biscaglia[3], Federica Michieletto[4], Stefania Vasselli[5], Daniela Galeone[5], Angela Meggiolaro[5], Angela Giusti[6], Maria Bellenghi[1], Massimo D'Archivio[1], Claudia Cataldo[1], Elena Ortona[1], Roberta Masella[1], Alessandra Carè[1]

[1]Centre for Gender-Specific Medicine, [6]Centro Nazionale per la Prevenzione delle Malattie e la Promozione della Salute, Istituto Superiore di Sanità, Rome, Italy, [2]Servizio Epidemiologico Regionale e Registri, Azienda Zero del Veneto, Padua, Italy, [3]Direzione salute e Integrazione Sociosanitaria, Regione Lazio, Rome, Italy, [4]Direzione Prevenzione, Regione Veneto, Venice, Italy, [5]Ministero della Salute, Rome, Italy

The Italian health care system introduced the concept of 'gender' in health care with the law 3/2018 and the subsequent "National plan for the application and dissemination of gender medicine", paving the bases for the "gender approach" as a cultural change. Thus, the assessment of biological, environmental and social variables, on which sex-related health differences may depend, move to become ordinary practice in the National public health system.

In 2020, the National Plan for Prevention and Health Promotion 2020-2025 (PHPP) was developed by the Ministry of Health and each Italian Region made it operational with regional plans. According to it, each regional PHPPs is encouraged in including the"gender dimension" to improve effectiveness and equity of health interventions and actions. The most limiting aspect to the application of the principles of gender in health promotion is the information gap related to the limited gender-based data and to the effectiveness of gender-oriented health promotion interventions. A working group composed by Regions, MoH and National Institute of Health started to elaborate guidelines supporting the inclusion of gender-approach in the development and implementation of the regional PHPPs, and to collect information about the gender-oriented actions proposed. One of the main goal is the promotion of this cultural change by some examples of how the gender differences could impact on specific preventive actions, such as gender differences in colorectal cancer, smoking cessation, and physical activity promotion. The working group developed a survey to collect information on gender oriented actions planned by the Regions and indicators to measure its impact on health and equity. The final aim will be to improve the knowledge, attitude and practice of the health professionals and to produce and share data and evidence of the efficacy of the gender-oriented approach in health promotion.

OC43 ORAL COMMUNICATIONS

Sex- and gender-specific drug abuse dynamics: the need for tailored therapeutic approaches

Simona Zaami[1], Daniela Segreto[2], Giuseppe Gullo[3]

[1]Department of Anatomical, Histological, Forensic and Orthopedic Sciences, "Sapienza", University of Rome, Roma, Italy, [2]Technical Panel on Gender Medicine, Sicily Regional Health Service, Palermo, Italy, [3]Department of Obstetrics and Gynecology, University of Palermo, Villa Sofia Cervello Hospital, Palermo, Italy

Expounding upon sex as a biological variable is significant from a wide array of endpoints: basic neuroscience, medicine, mental health, physiology and behavioral science. Substance use and drug abuse patterns are certainly an area of great relevance in that regard. The unique issues that women may face in terms of substance abuse patterns are determined by both sex (i.e. differences based on biology) and gender (i.e. differences based on culturally defined roles for men and women). Research has shown that women who use drugs can have issues related to hormones (making them more sensitive than men to the effects of some drugs), menstrual cycle, fertility, pregnancy, breastfeeding, and menopause. Furthermore, women who use drugs might be more severely affected from a cardiological standpoint and experience worse blood vessels damage. Neurological alterations in women who use drugs can also unfold differently compared to men. From the social and behavioral perspectives, female drug users often provide unique reasons for their habit, including weight-control, countering exhaustion, coping with pain, and self-medication for mental health conditions.

As for the distinctive traits characterizing female drug users, it is worth remarking that women often show different responses and effects from substances, more severe cravings and a higher risk of relapse following treatment, as well as more frequent emergency room admittance or even overdose death. In light of the above-mentioned dynamics, we believe that drug use therapeutics and future strategies aimed at addiction management and rehabilitation would greatly benefit from a gender-specific approach taking into account both the physical/physiological and socioeconomic determining factors. The fight against the scourge of drug trafficking and abuse needs to rely on a concerted, multidisciplinary effort for the sake of all those suffering from addiction disorders, women and men with specific needs requiring tailored, gender-specific approaches.

OC44 ORAL COMMUNICATIONS

COVID-19-related sex and gender knowledge among virologists: frequently addressed but not prioritized in research and education

Helena Schluchter[1;2], Gabriele Kaczmarczyk[2;3], Ute Seeland[2;3;4]

[1]Department of Anesthesiology, Heidelberg University Hospital, Heidelberg, Germany, [2]German Society for Gender-Specific Medicine (DGesGM), Berlin, Germany, [3]German Medical Women's Association (DÄB), Berlin, Germany, [4]Institute of Social Medicine, Epidemiology and Health Economics, Charité - Universitaetsmedizin Berlin, Berlin, Germany

Background: Biological (sex) as well as socio-cultural and behavioral (gender) aspects influence the distinct impact of disease on subpopulations, as seen recently during the coronavirus disease 2019 (COVID-19) pandemic. There is still a lack of sex- and gender-sensitive medical education at German medical faculties. This knowledge would be particularly important for virologists for target-group-oriented measures during viral pandemics.

Methods: Virologists at German university hospitals (n = 36) were invited to participate anonymously in a descriptive-phenomenological qualitative online focus survey (survey monkey) in the fall of 2021, comprising 16 questions on sex and gender differences relevant to their field with emphasis on the COVID-19 pandemic. The response rate was 44.4%.

Results: Sex differences in immune response to severe acute respiratory syndrome coronavirus type 2 (SARS-CoV-2) infection were addressed regularly or upon student's request by 81% of virologists. The higher mortality in men with COVID-19 infection was discussed at least sporadically by 75% of experts. Sex differences in side-effects of COVID-19 vaccinations were occasionally taught by around 70% of experts. 50% of virologists traced differences in incidence of COVID-19 equally to either biological aspects or social behavior. For 25% of experts, a pandemic-related advancement of their own sex- and gender-sensitive approach to teaching and research could be identified. However, 80% of participants didn't consider sex and gender knowledge as relevant to their field. Only 25% emphasised the importance of sex- and gender-sensitive content of examinations.

Discussion: Despite sufficient scientific evidence for sex and gender differences in virology and immunology, these aspects are only occasionally addressed by lecturers. Barriers to the systematic implementation of sex- and gender-sensitive medical education are reinforced by a lack of recognition of the relevance of an intersectional approach to clinical medicine.

OC45 ORAL COMMUNICATIONS

Transgender health and communication strategies: the website Infotrans.it

Maria Teresa Pagano[1], Camilla Cittadini[1], Lucrezia Gambardella[1], Luciana Giordani[1], Paola Matarrese[1], Angela Ruocco[1], Carmela Santangelo[1], Marina Pierdominici[1], Matteo Marconi[1]

[1]Italian National Institute of Health, Reference Center for Gender Medicine, Rome, Italy

Transgender people face significant barriers to accessing health care and health-determining resources, such as education, employment and housing. The lack of independent, certified and up-to-date information, easily accessible to users, both in health and legal rights, is a critical issue which needs to be addressed to foster social inclusion of this population.

In this regard, the Italian National Institute of Health and the Italian Office against Racial Discrimination within the National Operational Program for Social Inclusion (European Social Fund 2014 2020), created Infotrans.it (www.infotrans.it), the first institutional website in Europe that provides adult transgender population with legal and health information. This website allows a rapid access to up-to-date databases dealing with health, rights and anti-discrimination rules at the workplace. Moreover, it includes a detailed map of the public trans-specific healthcare services, transgender organizations, legal help desks, and other services available throughout Italy.

Infotrans.it has been online since May 2020. The results achieved since then have been very encouraging. The unique visitors who visited the website were over 100,000 and the published contents were read more than 280,000 times, showing a high interest of the general population towards this topic. The website is mostly visited by Italian users, but we have received visits from different countries around the world. This international interest prompted us to translate all content into English, Spanish and Portuguese.

The results achieved so far by Infotrans.it show how appropriate information can represent a first step towards reducing discrimination, marginalization and social exclusion in order to improve well-being and health of transgender people.

OC46 ORAL COMMUNICATIONS

Education in gender medicine is overdue!

Gabriele Kaczmarczyk[1;3], Susanne Dettmer[4], Sabine Ludwig[5], Ute Seeland[2,5]

[1]Deutscher Ärztinnenbund, Berlin, Germany, [2]Institute of Social Medicine, Epidemiology and Socioeconomics, Charité, Universitätsmedizin Berlin, Germany, [3]German Women Medical Association, [4]Institute for Medical Sociology and Rehabilitation, Charité, Universitätsmedizin Berlin, [5]German Society for Gender-Specific Medicine

Gender-equitable medicine is the prerequisite for adequate health care for the entire population. Since gender medicine is only now slowly picking up speed (at least in Germany), it is important that young medical students learn about gender medical aspects in all subjects of their training and later can take them into consideration in their practical work. The Federal Ministry of Health commissioned us to evaluate the 37 state medical faculties in Germany and to ask to what extent gender medicine is anchored in the curricula.

Thirty-seven deans of teaching and studies were asked to fill out a questionnaire – if there were any ambiguities, questions were asked through personal contact. It turned out that only 7% of the faculties had fully integrated gender medicine into the curriculum. The teaching staff often had little use for the term "gender medicine". However, a small in-depth survey with specific factual questions ("Do you teach that . . .") among the cardiologists showed a more positive picture: almost all the topics asked (heart attack and symptoms, torsades de pointes, etc.) were dealt within the students' lessons. This was not the case in clinical pharmacology and virology: despite the obvious gender-specific differences in the pandemic, gender-specific differences were hardly addressed, with the exception of cardiology. Public campaigns that have been going on for about 20 years have probably had an effect here. Obviously, however, a large part of modern teaching in German medical schools is still androcentric and is hardly changing. The actual German government has decided to remedy the situation. It remains to be seen whether this will succeed, especially when more women are to be placed in medical leading positions with teaching tasks (currently are only 13% women in clinically important departements).

OC47 ORAL COMMUNICATIONS

Reflexivity as a tool for medical students to identify and address gender bias in clinical practice: a qualitative study

Elisa Geiser[1], Léa Schilter[2], Jean-Michel Carrier[3], Carole Clair[1], Joëlle Schwarz[1]

[1]Health and Gender Unit, Department of Education, Research and Innovation, Center for *Primary Care and Public Health (Unisanté), [3]Medical Education Unit, Faculty of Biology and Medicine, University of Lausanne, Switzerland, Lausanne, Switzerland, [2] Department of Medicine, Internal Medicine, Lausanne University Hospital (CHUV), Lausanne, Switzerland*

Context: Gender bias interferes with optimal medical care for both men and women, leading to health inequalities and contributing to health risks for patients. Reflexivity is used in medical education to improve professionalism and health provision. This study aimed to assess the adequacy of reflective practice for raising awareness of gender bias in medical practice as part of medical student teaching in Switzerland.

Methods: This qualitative study was conducted in general ambulatory medicine in Lausanne University Hospital, Switzerland with 160 Master's students. Through group discussions and on-line reflection questionnaires, students were asked to discuss clinical cases they encountered focusing on potential gender bias. We analyzed the reflection questionnaires and discussion notes using a thematic analysis approach.

Results: The reflection on the clinical reasoning steps from a real case identified gender bias at each stage of the clinical case management, from patient history to management. The analysis of the reflection questionnaires revealed four factors that facilitated reflexivity on gender bias: guidance from a gender expert, peer-to-peer exchange, the particular clinical case and students' prior gender awareness. Group discussions with expert guidance and peer-to-peer exchange allowed the majority of students to become aware of their own gender bias or/and that of their colleagues. The students found the exercise useful for linking theoretical lectures to everyday clinical practice. Regarding benefits and disadvantages of having little clinical experience, students had contrasting opinions.

Discussion: Our study adds to the current literature on gender bias by assessing use of an innovative framework combining group discussions and reflection questionnaires integrated into clinical practice of medical students to raise awareness of gender bias in patient management. It increased medical student awareness of their own gender bias and also that of other students and experienced doctors they encountered.

P1.01 POSTERS

Frailty and the risk of infection-related hospitalizations in older age: differences by sex

Caterina Trevisan[1,2], Marianna Noale[3], Eliana Ferroni[4], Claudio Barbiellini Amidei[4], Cristina Basso[4], Ugo Fedeli[4], Giovannella Baggio[5], Stefania Maggi[3], Giuseppe Sergi[2]

[1]Medical Sciences, University of Ferrara, Cona, Italy, [2]Medicine, University of Padua, Padua, Italy, [3]Neuroscience Institute, National Research Council, Padua, Italy, [4]Epidemiological Department (SER), Azienda Zero, Padua, Italy, [5]Italian Center for the Studies on Gender Health and Medicine, Padua, Italy

The relationship between frailty and the risk of infectious diseases is still unclear, as well as the presence of sex differences in this association. This study aimed to investigate the extent to which frailty is associated with the risk of infection-related hospitalizations in older men and women and to explore if, among the female population, previous exposure to endogenous estrogens in terms of menopause age and number of pregnancies can modify such a relationship.

A sample of 2784 participants (1135 men, 1649 women) in the Progetto Veneto Anziani (Pro.V.A), with age ≥ 65 years was involved. At baseline and after a mean of 4.4 years, we assessed frailty according to the presence of at least three items among weakness, exhaustion, weight loss, low physical activity, and low walking speed. A passive follow-up on infection-related hospitalizations and mortality was performed in the first 10 years of observation through linkage with regional registers. The association between frailty and infection-related hospitalizations was assessed in two time windows (from baseline to the first follow-up, from the first follow-up to the end of observation) through mixed-effects Cox regressions.

Frailty prevalence was 8.1% at baseline and 12.5% at follow-up, with no differences by sex. During the first and second time windows, 278 (10%) and 477 (24.8%) individuals experienced infection-related hospitalizations, respectively. Frailty was significantly associated with a 78% higher risk of infection-related hospitalization, with stronger results in men (HR = 2.32, 95%CI: 1.63-3.30) than in women (HR = 1.54, 95%CI: 1.18-2.02). Focusing on women, we found a possible modifying effect for the number of pregnancies ($p_{interaction}$ = 0.10) but not menopausal age. After stratifying the analyses, women who experienced <2 pregnancies demonstrated a higher hazard of infection-related hospitalization as a function of frailty (HR = 3.00, 95%CI:1.58-5.71) compared with women who had ≥ 2 pregnancies (HR = 1.68, 95%CI: 1.18-2.39).

This study suggests that frailty in older age increases the risk of infection-related hospitalizations, especially in men. The "immunologic advantage" of the female sex in younger age seems to persist also after menopause as a function of the number of pregnancies a woman has experienced.

86 - Aging/Geriatrics

P1.02 POSTERS

Gender difference in potentially inappropriate prescriptions in elderly

Xhoajda Taci[1], Alberto Francescon[1], Francesca Bano[2], Paola Toscano[2], Sabrina Scariot[1], Samuela Pinato[2], Eva Draghi[2], Nicola Realdon[1], Umberto Gallo[2]

[1]Farmacia, Università degli Studi di Padova, Padua, Italy, [2]Servizio Farmaceutico Territoriale, Azienda ULSS 6, Padua, Italy

Background and Objective: Potentially inappropriate prescriptions (PIPs), associated with adverse drug reactions and hospitalization are common in elderly patients with multiple drugs. Gender differences in exposure to PIPs have been reported recently [1]. Women are more predisposed to adverse reactions (ADR) [2]. The aim of our observational study is to estimate PIPs' gender differences in elderly outpatients.

Materials and Methods: PIPs defined by STOPP [3] criteria and clinically relevant interactions were performed by specific software and weighted with the Medication Appropriateness Index (MAI). Also we calculated drugs cumulative anticholinergic activity by Anticholinergic Cognitive Burden (ACB) score. We selected patients aged ≥ 70 in chronical therapy with ≥ 7 drugs. Statistical analysis was performed using Jamovi.

Results: 601 patients were selected: 311 women (52%) and 290 men (48%) with a mean age in order of 84.1 and 81.4 ($p < .001$). Number of drugs taken was similar between genders. Woman have an higher average MAI score and ABC score ($p < .001$) despite taking a comparable number of drugs. The odds of taking drugs without an apparent indication of use is almost double in women (OR 1.89 CI 95% 1.36-2.63).

Conclusion: Our analysis highlighted a greater propensity to receive a PIP in women, despite the two genders being treated with a similar number of drugs. This data could explain higher prevalence of ADR in women [2]. However, further studies remain necessary to investigate the impact of gender on pharmacological prescriptions.

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P1.03 POSTERS

Implementing artificial intellingence in gender specific-care in academic hospitals in Italy

Tiziana Vavala[1], Gitana Scozzari[2], Ida Raciti[3], Antonio Scarmozzino[3], Libero Ciuffreda[1]

[1]Department of Oncology, SC Oncology 1, [3]Clinical Risk Management Unit, AOU Città della Salute e della Scienza di Torino, Turin, Italy, [2]Hospital Medical Direction, AOU Città della Salute e della Scienza di Torino, Ospedale Molinette, Turin, Italy

Background: Investigation about sex and gender differences involves all levels of biomedical and health sciences such as preclinical research, population studies, organizational and sociological approaches. In this context different technologies based on artificial intelligence (AI) are able to clarify relevant patterns, facilitating progress towards individually tailored preventive and therapeutic interventions. For these reasons, in order to implement AI in a sex and gender health care based approach, a pilot project has been defined by AOU Città della Salute e della Scienza Academic Hospital.

Methods: Experts of Gender Medicine are planned to be involved by AOU Città della Salute e della Scienza Academic Hospital together with AI experts in order to create an interactive working group. The aim is to create predefinite algorithms with specific sex and gender related requirements in order to reduce undesiderable bias and to magnify gender differences during collection of routinely clinical data. Specifically, the aim is to optimize data mining of quantitative pre-defined sex-based indicators such as principal diseases causing hospitalization but also sex and gender differences, if present, in Hospitalization timings and home discharge.

Conclusions: Fair data generation represents the primarily tool for design and further application of AI-based techonologies, particularly in the context of sex and gender-based health care. For now, no sex-dedicated algorithms or gender specific procedures are currently applied in the context of healthcare ordinary activities. To our knoledge this is the first project which aim to identify sex and gender differences also trhough a properly designed algorithm based on AI.

P1.04 POSTERS

Gender differences in repair mechanisms of chronic cholangiopathies with progressive fibrosis

Massimiliano Cadamuro[1], Labjona Haxhiaj[1], Chiara Montanaro[1], Erica VIlla[2], Annarosa Floreani[3], Nora Cazzagon[3], Giovannella Baggio[4], Mario Strazzabosco[5], Paolo Simioni[4], Luca Fabris[1]

[1]Department of Molecular Medicine, [3]Department of Surgical, Oncological and Gastroenterological Sciences, [4]Department of Medicine, University of Padua, Padua, Italy, [2]Department of Medical Specialties, University of Modena and Reggio Emilia, Modena, Italy, [5]Yale University, Digestive Disease Section, Liver Center, New Haven, USA

Background: In chronic liver disease pathophysiology, gender dimorphism is much less characterized compared with degenerative disorders affecting other organs. Repair mechanisms are instrumental to direct fibrogenesis and progression of chronic inflammatory conditions. Therefore, we investigated the gender-specific differences in tissue repair culminating in liver fibrogenesis and sustained by activation of hepatic progenitor cells (HPC) and ductular ductular reaction (DR) in two models of diseases of the biliary epithelium (cholangiopathies) featuring progressive fibrosis. We considered the $Pkhd1^{del4/del4}$ and the $Mdr2^{-/-}$ mouse models, orthologous of the human congenital hepatic fibrosis/Caroli's disease (CHF/CD) and primary sclerosing cholangitis (PSC), respectively, and in sections of human PSC and CHF/CD.

Materials and Methods: Serial sections of liver tissue specimens of PSC (n = 9 M/n = 5 F) and CHF/CD (n = 3 M/n = 1 F), along with $Pkhd1^{del4/del4}$ (n = 11 M/n = 23 F), and $Mdr2^{-/-}$ mice (n = 5 M/n = 3 F), were stained with Sirius Red (histological staining) and with immunohistochemistry for myofibroblasts (α-SMA), macrophages (CD68, human samples only), and RDC/DR (K19). Extent of DR, fibrosis, inflammation and number of HPC were evaluated with computer-assisted morphometry.

Results: In both mouse models and human diseases, fibrosis resulted higher in M compared with F, without significant differences in myofibroblast accumulation and HPC activation. In both $Mdr2^{-/-}$ mice and PSC patients, extension of DR was more prominent in M than F, whereas in $Pkhd1^{del4/del4}$ mice, dysgenetic biliary lesions were greater in F than in M. In addition, in PSC samples, the number of $CD68^{+}$ macrophages was higher in M as respect to F. Similar trends were also found in human CHF/CD samples.

Conclusions: This study shows gender-specific differences in tissue repair mechanisms of the biliary epithelium in both mouse models and human samples of PSC and CHF/CD. In particular, we found more severe fibrogenesis associated with more intense inflammatory infiltrate dominated by macrophages in males compared to females, thereby providing mechanistic evidence of the more severe clinical course of chronic liver diseases

affecting men as reported in viral and metabolic etiologies.

P1.05 POSTERS

Estrogens increase structural plasticity of dopaminergic neurons through the modulation of the activity of the dopamine D3-nicotinic acetylcholine receptors heteromer

Giulia Sbrini[1], Veronica Mutti[1], Zaira Tomasoni[1], Federica Bono[1], Cristina Missale[1], Chiara Fiorentini[1]
[1]Department of Molecular and Translational Medicine, University of Brescia, Brescia, Italy

Parkinson's disease (PD) is the second most common neurodegenerative disorder characterized by the loss of dopaminergic (DA) neurons in the substantia nigra (SN). Interestingly, the risk to develop this pathology is around twice as higher in males than in females who also show a later onset but a faster progression of the disease; among other factors, these differences may depend on the action of sex hormones. In particular, estrogens, which are significantly higher in females, have been proven to have a neuroprotective role on DA neurons. However, the mechanisms responsible for the positive effect of this hormone are not elucidated yet.

We recently found that a heterodimeric complex composed of the DA D3 receptor (D3R) and nicotinic acetylcholine receptors (nAChR) (D3R-nAChR heteromer), physiologically expressed in DA neurons, represents the key molecular unit crucial for exerting neurotrophic and neuroprotective effects induced by both D3R agonist and nicotine. Interestingly, it has been found that estrogens are positive allosteric modulators of the nAchR thus suggesting that in the presence of this hormone, DA neurons may be more protected from injury through a more sustained D3R-nAChR heteromer activation.

On these bases, using DA neurons from primary mouse mesencephalic cultures and transfected cells we found that the treatment with 17-b-estradiol was able to enhance the neuroplastic and neuroprotective effect induced by nicotine through the activation of the nAchR-D3R heteromer. On the contrary, progesterone, which has a negative allosteric modulator site on nAchR, was able to prevent the positive effect of nicotine treatment by inhibiting the functioning of the heterodimer.

All in all, these data provide interesting insight into the mechanisms responsible for the trophic and neuroprotective actions of estrogens on DA neurons of the SN thus explaining, at least in part, the reduced risk of women to develop PD when ageing or other environmental stressors occur.

P1.06 POSTERS

Gendered social determinants of health and the risk of thromboembolic events and bleeding in atrial fibrillation

Jonathan Houle[1], Zahra Azizi[1], Valeria Raparelli[2], Colleen Norris[3], Marco Proietti[4], Louise Pilote[5]
[1]Medicine, McGill University, Montreal, Canada, [2]Department of Translational Medicine, University of Ferrara, Ferrara, Italy, [3]University of Alberta, Edmonton, Canada, [4]Medicine, University of Milan, Milan, Italy, [5]Medicine, McGill University Health Center, Montreal, Canada

Atrial fibrillation (AF) is associated with an increased risk of thromboembolic events (TE) and bleeding. Balancing the risks and benefits of anticoagulation (AC) in patients with AF poses great challenges. However, traditional risk factors have only shown moderate predictive ability for TE and bleeding outcomes. Whether social determinants of health (SDOH), which are gendered, impact TE and bleeding in individuals with AF is unknown. We investigated if gendered SDOH are associated with TE and bleeding risk in AF.

We used the EURObservational Research Programme (EORP) Long Term Registry, a multicenter, prospective registry of Europeans with AF recruited in 27 European countries from 2013 to 2016 and followed up to 2 years. Multivariate logistic regression models were used to assess the relationship between gendered SDOH (education, income, marital status, smoking, alcohol, physical activity, EuroQoL 5D-5LT), with a composite outcome of TE (transient ischemic attack, peripheral embolism, pulmonary embolism, deep vein thrombosis and others), and major bleeding events. C-statistic was used to compare model performance.

From11,096 patients (mean age of 69.2 ± 11.41 years, 40.1% females, 85.1% on AC, 80% with $CHA_2DS_2VASc \geq 2$), 9.45% had TE or bleeding during follow up. The multivariate model showed that higher income [OR: 0.48 (95%CI:0.37-0.61)], alcohol [OR: 0.90 (95%CI:0.81-0.98)], greater health state at baseline [OR: 0.65 (95%CI:0.42-1.00)], AC [OR: 0.55 (95%CI:0.46-0.67)] and CHA_2DS_2VASc [OR:1.09 (95%CI:1.04- 1.14)] were significant predictors of TE and bleeding. Our model with gendered SDOH generated a better C-statistic then CHA_2DS_2VASc alone, respectively 0.614 and 0.552.

Gendered SDOH appear to be important predictors of clinical outcomes in patients with AF. More research is needed to clarify how gender can be incorporated into clinical practice to better predict the risk of TE bleeding in this population.

P1.07 POSTERS

Seasonal patterns in ischaemic stroke in Andalusia: time series analysis by sex and age

Francisco José Rodríguez Cortés[1], Jorge Eugenio Jiménez Hornero[2], Juan Francisco Alcalá Díaz[3;4], Juan Luis Romero Cabrera[3;4], Roberto Manfredini[5], Pablo Jesús López Soto[1]

[1]Comprehensive Nursing Care, Multidisciplinary Perspective (GE08), [4]Nutrigenomics and Metabolic Syndrome of the IMIBIC (GC09),Maimonides Biomedical Research Institute of Cordoba (IMIBIC), Córdoba, Spain, [2]Department of Electrical and Automatic Engineering, University of Cordoba, Córdoba, Spain, [3]Department of Internal Medicine, Lipid and Atherosclerosis Unit, Reina Sofia University Hospital, Córdoba, Spain, [5]Department of Medical Sciences, University Center for Studies on Gender Medicine, University of Ferrara, Ferrara

Introduction: Ischemic stroke is one of the leading causes of death and disability worldwide. In relation to gender, different studies have observed that this pathology affects women and those of advanced age to a greater extent. The aetiology is associated with intrinsic (in addition to age and gender, co-morbidity) and extrinsic (environment) factors. Evidence indicates that there is a potential risk of ischemic stroke when temperatures fall. The aim was to verify seasonality in stroke hospitalisations in the Andalusian population (Spain), as well as to determine differences by sex and age.

Methods: Retrospective study. Patients admitted to Andalusian public hospitals for ischaemic stroke between 2009-2019 and aged between 20-75 years were included. Descriptive statistics were used. Time series analysis (single Cosinor analysis) was performed with the "card" package of the R software.

Results: 51,409 patient records were analysed, with 66.5% men and 33.5% women. The mean age of women was higher than that of men admitted (63.85 ± 10.38 vs. 62.52 ± 9.44 years old; $p < 0.001$). Women had a longer hospital stay (10.46 ± 13.18 vs. 10.06 ± 12.51; $p = 0.001$) and higher hospital mortality (7% vs. 6.3%; $p = 0.004$). A seasonal variation in hospital admissions for stroke was found, with a peak incidence in mid-March and a trough at the end of September. Significant differences were observed in seasonal variations by sex ($p = 0.02$); peaks at the beginning of March for females and at the end of March for males, and valleys at the end of August for women and at the end of September for men. Seasonal variations were also found by age. Men under 65 years of age, the peak was end-April, while women in the first week of May. Women over 65 years of age, the peak was in mid-February.

Conclusions: Hospital admissions associated to ischaemic stroke are more common in women and those who are older. Women are hospitalised longer and have higher in-hospital mortality. Stroke hospitalisation shows a seasonality with the peak coinciding with the beginning of spring. In women the peak is at the end of winter, while in men it is at the beginning of spring. Our findings are of interest for the application of temporal preventive measures (chronoprevention) and sex in ischaemic stroke.

P1.08 POSTERS

Sex and gender in cardiovascular flow models: where we are today

Francesca Maria Susin[1]

[1]Department of Civil, Environmental and Architectural Engineering, University of Padua, Padua, Italy

Computational and experimental fluid dynamic models of blood circulation are powerful tools widely adopted to simulate the behaviour of the cardiovascular system in both healthy and diseased conditions [1]. Thanks to models' results a better understanding of cause-effect relationships in cardiovascular physiopathology can be achieved [2], the assessment of the hemodynamic performance of medical devices can be performed [3] and the effectiveness of treatments and procedures can be improved [4], to give some examples.

However, the majority cardiovascular flow models proposed so far seem not to pay adequate attention to sex differences i.e., they are basically meant to be sex-independent tools. Generally speaking, a model twin can be patient- or population-specific and in the latter case a reference subject is simulated. Typically, the reference subject is the average adult male [5]. Sometimes, the sex of the simulated subject is not specified [6] or data of both male and female patients are contemporarily used [7]. Whatever the case, model results are usually attributed to the whole population, with no focus on the dependence of cardiovascular physiopathology on sex. Patient-specific models have been built for both male and female subjects [4]. In those cases, results are inherently sex-specific in a sense, but they are however not analysed with the aim of extrapolating information about sex effects. Models of blood flows in conditions peculiar to one or the other sex also exist e.g., pregnancy [8] and erectile function [9]. In that case, the noticeable observation is that sex-specific conditions are highly underrepresented in the world of cardiovascular flows modelling. Finally, to the best of my knowledge no model of blood circulation in either intersexual or transgender persons has been proposed so far.

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P1.09 POSTERS

The "Women and Heart in Menopause" prevention programme

Maria Teresa Caputo[1], Mojgan Azadegan[2], Federica Marchetti[2], Stefano Taddei[3]

[1]UO Medicina 1 Universitaria, Ospedale S. Chiara, Azienda Ospedaliera Universitaria Pisana, Pisa, Italy, [2]Direzione Sanitaria, Azienda Ospedaliera Universitaria Pisana, Pisa, Italy, [3]Dipartimento Medico, UO Medicina 1 Universitaria, Ospedale S. Chiara, Pisa, Italy

Objective: The incidence of cardiovascular disease (CVD) in women significantly increases after menopause. The atypical presentation and limited awareness of this evidence often lead to late diagnosis and worse prognosis. Therefore, early screening and proactive prevention programmes might have a substantial impact on this population. This study aimed to assess the prevalence of subclinical manifestations of CVD in asymptomatic post-menopausal women to inform future prevention approaches.

Design and Methods: A one-day program of CVD screening and prevention was offered to all asymptomatic post-menopausal woman accessing the UO Medicine I of the Azienda Ospedaliera Universitaria Pisana, Italy. Each subject underwent a full cardiovascular (cv) risk assessment, including screening comorbidities, assessment of cardiovascular risk factors and ECG recording. A trans-thoracic echocardiographic and US doppler carotid studies were also performed to identify subclinical evidence of organ damage. All patients were subsequently reviewed by a cardiologist to receive a final diagnosis, optimize therapies and plan adequate follow-up. In case of provided evidence of CVD, other specialist tests were scheduled according to clinical guidelines and performed in the following days.

Results: Between 2017 and 2022, 257 post-menopausal women attended the program. None had previous history of cv events. The diagnostic tests revealed that 55 women were hypertensives, 24 were smokers, 49 had dyslipidaemia, 16 were obese and 62 were overweight, 6 had impaired glucose tolerance and 4 had diabetes. Among patients with hypertension, the screening for subclinical organ damage revealed 31 women with left ventricular eccentric hypertrophy, 6 with left ventricular concentric hypertrophy and 6 with left ventricular concentric remodeling. Notably, 70% of the women included in the analysis were not aware of having cv risk factors or subclinical organ damage.

Conclusions: Our results reveal a high prevalence of cv risk factors and subclinical organ damage in post-menopausal women, that were unaware of their high or very high risk of CVD. This emphasizes the importance of adopting proactive prevention programs and screening for CVD in this population, which could substantially reduce the burden of CVD worldwide.

P1.10 POSTERS

Incidental right atrial mass in a patient with metastatic secondary pancreatic cancer: is it suggestive of worsening thrombosis or disease progression? A challenging case report

Agnese Maria Fioretti[1], Tiziana Leopizzi[2], Francesco Giotta[3], Giovanni Luzzi[2], Stefano Oliva[4]

[1]Cardio-Oncology Unit, [3]Medical Oncology Unit, [4]Cardiology-Intensive Care Unit, IRCCS Istituto Tumori "Giovanni Paolo II", Bari, Italy, [2]Cardiology-Intensive Care Unit, Ospedale SS. Annunziata, Taranto, Italy

Case presentation: A 56-year-old woman with previous breast cancer and secondary pancreatic carcinoma with liver metastases (LM) was treated with nab-paclitaxel, gemcitabine, 5-fluorouracil, folic acid, oxaliplatin, irinotecan, carboplatin. CTscan: pulmonary embolism (PE), iliac/femoral deep vein thrombosis (DVT). Cardio-Oncological workup: rest fatigue/dyspnea, BP: 110/80, ECG: sinus tachycardia 141 b/m', echocardiography: ejection fraction 55%, incidental solid right atrial mass (RAM) (2 x 3 cm) with irregular margins and no vascularization, attached to right atrium ceiling close to inferior vena cava orifice, highly mobile, during diastole encroaching into tricuspid valve orifice and right ventricle. Started direct oral anticoagulant (DOAC), edoxaban 60 mg/die, but PE/DVT persisted. For disease progression, discontinued anticancers and started supportive home care. Thoracic CTscan to identify the RAM nature was not performed for rapid progressive clinical decline. For worsening thrombocytopenia replaced edoxaban with nadroparin, halved its dose until withdrawal. For end of life disease, presented diffuse skin haemathomas suggestive of intravascular disseminated coagulopathy which led to death.

Conclusion: Cancer-associated thrombosis (CAT) is a feared frequent complication. In this case, the occasional finding of a large RAM in a young woman with CAT poses differential diagnosis between thrombus and cardiac tumors. For RAM features and patient history, the RAM strongly suggested extended thrombosis. However, even full dose edoxaban, a DOAC, was ineffective for hypercoagulability due to advanced cancer. In conclusion, palliative care (PC) is a peculiar category, aiming to the best quality of life possible through symptom control rather than to prolong life. There should be a lower threshold for stopping anticoagulants as death approaches. Indeed, PC should be symptom- and patient-focused rather than clot-focused. Clinical trials on treatment management in CAT-PC patients are warranted to design individualized paradigms.

P1.11 POSTERS

A case of gender dysphoria. Not only Yentl syndrome. Not only heart disease

Annalisa Vinci[1], Sara Amicone[2], Carmine Pizzi[2], Maurizio Del Greco[1]

[1]Unit of Cardiology, Ospedale Santa Maria del Carmine, Rovereto, Italy, [2]Unit of Cardiology, Department of Experimental, Diagnostic and Specialty Medicine-DIMES, Policlinico Sant'Orsola-Malpighi, Bologna, Italy

We present a case of a 36-year old female with female-to-male dysphoria.

Medical history: 2005 endocarditis on mitral valve complicated by septic embolisms and left cerebral hemorrhagic infarction. Residual moderate mitral regurgitation and epilepsy.

Migraine. Polycystic ovary syndrome. Fibromyalgia. Previous smoker. Overweight.

Since 2014 several admissions to Emergency Room (ER) for chest pain with no evidence of acute ischemia. 2016 begins transition process (testosterone). High blood pressure and dyslipidemia arise. Persisting episodes of chest pain.

Clinical course: January 2019 admission in our hospital for chest pain and palpitation. Beta blocker and ace inhibitor was set. February 2019 hospitalization for same symptoms. Investigations performed: negative. March 2019: echocardiogram: known moderate mitral regurgitation. FE 60%; Coronary CT scan: negative. Given the persistence of symptoms, the patient was provided with Event Recorder. 7/8/2019 during chest pain ST segment elevation at Event Recorder transmission. Contacted by our telecardiology clinic, sent to ER. Investigations performed: negative. Assuming vasospastic angina, calcium antagonist therapy was started. Verapamil was introduced and then stopped for intolerance. Therapy proceeds with amlodipine/betablocker with benefit. May 2021 admission to ER for acute chest pain after mastectomy (transition). During chest pain at ECG diffuse ST segment elevation. At admission: normal ECG. Echocardiogram: stable. Coronary CT scan: negative. Diltiazem was started. Discharge diagnosis: acute myocardial infarction due to suspected coronary arteries vasospasm after mastectomy. Testosterone stopped 1 month before mastectomy. Amlodipine/betablocker 1 day before. After 2 months testosterone was re-started. 2022 therapy proceeds with diltiazem, only one episode of chest pain after discharge with no ECG modification at Event Recorder. Asymptomatic at next follow up. Recently our patient expressed desire to get pregnant, due to complex medical condition we strongly advice against.

Conclusions: This case merges complexity of women heart disease and transition process. How testosterone impacts on heart disease is currently an hot topic. This complex scenario highlights transgender patients' needs, desire of motherhood included.

P1.12 POSTERS

Role of Mediterranean diet in modulating anthropometric parameters in women with menopause

Michela Cirillo[1], Sonia Pompilii[2], Luigina Chiodi[2], Cinzia Fatini[1]

[1]Experimental and Clinical Medicine, University of Florence, Florence, Italy, [2]Prevention Department, Food and Nutritional Hygiene Service, ASL Teramo, Italy

Ageing/menopausal status increases many cardiovascular risk factors in women, such as the modification of metabolic profile, confirming that postmenopausal women have increased vascular vulnerability and indicating the need of early cardiovascular prevention.

Menopausal women show body changes due not only to weight gain, but also to increased waist circumference, a well-known cardiovascular risk factor. These changes are related to the lack of neuroprotective and neurotrophic estrogens effects, as well as to emotional and social experience.

The aim of this interventional prospective study was to evaluate the role of a diet balanced in macro and micronutrients, according to the Mediterranean diet pattern, in the prevention of cardiovascular disease.

We enrolled 129 menopausal women (mean age 56.6 years) referring to the Nutritional Prevention Clinic, Teramo. Women with normal weight were 2.3%, 43.4% were overweight, 39.5% had grade I obesity, 8.5% grade II and 6.2% morbid obesity. The evaluation of the other cardiovascular risk factors, evidenced that more than 20% of women were dyslipidemic and 31.8% suffered from hypertension.

The nutritional investigation evidenced that the consumption of foods that are typical of the Mediterranean diet were inadequate, in particular fruits and vegetables, legumes and fish.

Our findings evidenced the role of dietary correction in modulating anthropometric parameters, in particular a significant reduction in weight, circumferences and skin folds analyzed from baseline to follow-up (T1, T2, T3, T4) was found ($p < 0.0001$).

Moreover, we observed a significant reduction in the prevalence of dyslipidemia from baseline to T4 (20.9 vs. 8.5, $p = 0.007$), due to the Mediterranean nutritional intervention.

The counseling and nutritional prevention, allowed us not only to improve the overall menopausal women health status, but also to favor the choice of a virtuous eating style as a family life style.

In the ideal world, the experience of a medical clinic setting provided to women with menopause, should reflect a multidisciplinary approach aimed to prevent cardiovascular and osteoporotic risk.

P1.13 POSTERS

Cardiovascular prevention in menopause: dietary intervention study

Francesca Meraglia[1], Gioele Ciaghi[1], Nicole Lievore[1], Gianluca Poncina[1], Aurora Favaro[1], Paolo Spinella[1], Valerie Tikhonoff[1]

[1]Department of Medicine, University of Padova, Padua, Italy

Rationale: Recently several scientific societies outline the gaps in research, prevention and treatment of cardiovascular disease (CVD) for women. The risk of CVD increases after menopause, with unfavourable changes in body fat distribution. The CAR-PREDIME study is designed to evaluate the effectiveness of 4 dietary patterns (Mediterranean, DASH, low fat and low carbohydrate diet) in post-menopausal women (PMW) in order to reduce the prevalence and progression of CVD.

Methods: In the frame of an ad hoc outpatient clinic at the Dietetic and Clinical Nutrition Unit, PMW free from hormone therapy, with body mass index (BMI) between 24 and 39 kg/m2 and with at least one other cardio-metabolic risk factors, were randomly recruited. A 138-item food frequency questionnaire and a detailed questionnaire concerning lifestyle, medical history and physical activity were administered. All subjects underwent physical examination, including anthropometric (weight, height, waist (WC) and hip (HC) circumferences, and skinfolds) and blood pressure (BP) measurements, body composition with bioimpedance analysis (BIA) and blood sampling. Each patient was randomly assigned to 4 dietary patterns. They will be followed-up with re-assessment of the same protocol each 3 months for two years.

Results: Up to now, 74 women aged 55.6 ± 4.6 years with a first 3-months follow-up were analysed. We observed a reduction in body weight (Δ = -2.2 kg, $p < 0.0001$), in BMI (Δ = -0.89 kg/m^2, $p < 0.0001$), in WC (Δ = -2.4 cm, $p < 0.0001$) and HC (Δ = -1.8 cm, $p < 0.0001$), in subscapular skinfold (Δ = -1.5 cm, $p = 0.0002$) and in systolic (Δ = -5.4 mmHg, $p = 0.0003$) and diastolic BP (Δ = -3.0 mmHg, $p < 0.0001$). Absolute values of fat mass (FM) based on skinfolds (Δ = -1.88 kg, $p < 0.0001$) and BIA (Δ = -2.3 kg, $p < 0.0001$) were reduced while no changes were observed for lean mass. The daily calorie intake was reduced by 6.3 % ($p = 0.007$) but also the physical activity was reduced by 27 % ($p = 0.009$). A significant reduction was observed oly in daily fat intake (Δ = -4.7 g/day, $p = 0.01$) supported by an increase in low-fat diet adherence score (Δ = +0.88, $p = 0.001$).

Conclusion: We observed that weight loss, mostly FM reduction, is only due to daily calorie intake reduction with a positive influence on cardiovascular risk factors such as BP.

P1.14 POSTERS

Managing cardiac arrest secondary to spontaneous coronary artery dissection: should we routinely consider ICD implantation? Insights from Parma SCAD registry

Rossella Giacalone[1], Marco Toselli[2], Giovanna Maria Pelà[3], Maria Alberta Cattabiani[1], Antonella Vezzani[4], Giorgio Benatti[1], Iacopo Tadonio[1], Marco Ferretti[5], Filippo Luca Gurguglione[1], Manjola Noni[1], Giampaolo Niccoli[1], Diego Ardissino[1], Luigi Vignali[1], Emilia Solinas[1]

[1]Cardiothoracic and Vascular, Division of Cardiology, [4]Cardiac Surgery Intensive Care Unit, University Hospital Parma, Parma, Italy, [2]GVM Care and Research, Maria Cecilia Hospital, Interventional Cardiology Unit Cotignola, Ravenna, Italy, [3]Department of Medicine and Surgery, University of Parma, Parma, Italy, [5]Division of Cardiology, IRCC Santa Maria Nuova Hospital, Reggio Emilia, Italy

Cardiac arrest secondary to spontaneous coronary artery dissection (SCAD) represents a challenging scenario and deserves specific considerations. Methods We collected clinical data of four women admitted to the Coronary Care Unit of Parma Hospital during the last two years, whose presentation of SCAD was cardiac arrest due to ventricular fibrillation.

Results: Three patients survived the acute phase. One patient received a subcutaneous implantable cardioverter-defibrillator (S-ICD), because of the high risk of SCAD recurrence. We therefore propose a flow chart of management of cardiac arrest in patient with suspect of SCAD. Evaluating risk of SCAD recurrence and sudden cardiac death: Although SCAD patients are more likely to suffer from ventricular arrythmia or sudden cardiac death than non-SCAD MI patients, the risk-benefit ratio of ICD implantation is still uncertain. The evaluation of scar burden with CMR can help to stratify the global arrhythmic risk, as extensive myocardial scar with a residual impaired LVEF increases the risk of future arrhythmic events. In our series, only one patient underwent S-ICD implantation, and the decision was mainly driven by the finding of underlying arteriopathy affecting other vascular territories, suggesting a potentially higher rate of SCAD recurrence. For this particular subset of patients, we propose an algorithm that combines predisposing factors and myocardial injury quantification data that could be useful for the estimate of the risk of malignant arrythmias, as well as the risk of recurrence of SCAD, but needs to be validated in larger case studies.

Conclusions: The acute management of cardiac arrest related to SCAD deserves specific consideration. The residual myocardial damage, predisposing and precipitants factors should be evaluated in order to estimate the SCAD recurrence and sudden cardiac death risks.

P1.15 POSTERS

Pregnancy and delivery of women with heart disease: a single center experience

Giulia Corana[1], Eliana Franchi[1], Silvia Maffei[2], Federica Marchi[1], Giovanna Casilla[3], Massimiliano Cantinotti[1], Emilio Sigali[1], Giuseppe Santoro[1], Nadia Assanta[1]

[1]Fondazione Toscana G. Monasterio, Massa, Italy, [2]Fondazione Toscana G. Monasterio, Pisa, Italy, [3]Azienda USL Toscana Nord Ovest, Massa, Italy

Background: The number of adult congenital heart disease (ACHD) patients is constantly growing up, as the result of the increased survival of children and young adults with complex CHD. In this population, the number of women having a pregnancy is also growing up, in addition to women with acquired HD. Together they represent a small population with needs partially different from women without HD. To address them to reference centers can provide standardized care practices and help women to feel safe in a structure where they often had follow-up for years.

Aim: To report data about childbirths of women with HD during last 4 years at the "Ospedale del Cuore" in Massa, a regional reference center also for the follow-up of women with congenital/acquired HD during pregnancy until delivery.

Results: From 2018 to 2021, 52 women gave birth to their babies at our center, after a follow-up during pregnancy for congenital or acquired HD. 42 patients were resident in Tuscany and 10 patients in other Italian regions. The median age was 33.3 years (range 24-46). 21 women had ACHD (median age 33.8 years): 13 of these underwent at least one cardiac surgery procedure, 1 a cardiac interventional procedure, 7 had CHD on follow-up. 13 patients (median age 33.2 years) had acquired HD, like coronary artery disease and cardiomyopathies (3 with implantable cardioverter-defibrillator – ICD). 18 patients (median age 32.8 years) were affected by arrhythmias or channelopathies (1 with ICD). A vaginal delivery was observed in 17 women (32.7%), spontaneous in 13 and operative in 4; a cesarean section was performed in 35 women (67.3%). Indications for cesarean section were obstetrical (39.4%) or cardiologic (60.6%). During the last 2 years (2020-2021) the 44.4% of women had a vaginal delivery. Mean gestational age (GA) at delivery was 38 weeks and 4 days (range 33+5/41+3) and birth weight was adequate for GA in all except few cases.

Conclusions: In our population, we did not record any significant adverse event due to HD in women and babies. Cesarean section had higher frequency than in physiological pregnancies, but the decrease during last 2 years could mean that more attention has been paid to promote vaginal delivery when possible. Mean GA was a term GA, an important factor for baby health and for a normal adaptation to extrauterine life.

P1.16 POSTERS

Oxidative stress is related to low peak oxygen uptake by cardiopulmonary exercise testing only in women

Satoko Ojima[1], Takuro Kubozono[1], Shin Kawasoe[1], Takeko Kawabata[1], Akiko Yoshikawa[1], Yoshiyuki Ikeda[1], Mitsuru Ohishi[1]

[1]Department of Cardiovascular Medicine and Hypertension, Graduate School of Medical and Dental Sciences, Kagoshima University, Kagohima City, Japan

Background: Systemic oxidative stress is known to be associated with the severity and prognosis in patients with cardiovascular diseases (CVD). On the other hand, exercise tolerance is closely related to the prognosis in heart failure patients. However, no report has examined how oxidative stress is involved in peak oxygen uptake (peak VO_2) evaluated by cardiopulmonary exercise testing (CPET) in patients with CVD between men and women.

Purpose: To examine the relationship between oxidative stress and CPET parameters such as peak VO_2 in patients with CVD between men and women

Methods: We recruited 214 patients with CVD who performed CPET and measured brain natriuretic peptide (BNP). Men were 113 patients, and women were 103 patients. All patients underwent CPET using 0W warm-up and 10W ramp protocol on an upright electrical bicycle ergometer. We defined low peak VO_2 as peak VO_2< 14 ml/min/kg. The oxidative stress level was evaluated by a d-ROMs test, in which the amount of organic hydroperoxide converted into radicals oxidising N, N-diethyl-p-phenylenediamine hydroperoxide is measured. The high level of d-ROMs was defined as d-ROMs > 401 U.CARR.

Results: Mean age was 56 ± 15 years old, and men and women were of similar age. Mean ejection fraction (EF) was significantly different between men and women (men vs women; 41 ± 16% vs 56 ± 18%, p < 0.001). Log BNP and d-ROMs were not significantly different by gender. In univariable logistic regression analysis of men, log BNP was significantly associated with low peak VO_2, whereas that of women, age, log BNP and d-ROMs were significant f associated factors for low peak VO_2. In multivariable logistic regression analysis adjusted for CVD etiology of men, log BNP was independently associated with low peak VO_2 (OR 1.56, CI 1.03-2.36, p = 0.037). While, in multivariable logistic regression analysis adjusted for CVD etiology of women, the high level of d-ROMs was independently associated with low peak VO_2 (OR 3.49, CI 1.31-9.33, p = 0.013).

Conclusions: Low peak VO_2 in men was only associated with log BNP, while that in women was associated with the high level of d-ROMs. Only in women oxidative stress was related to low peak VO_2.

P1.17 POSTERS

Left atrial function in severe mitral regurgitation in women and men - echocardiographic analysis of sex differences

Ute Seeland[1;2;3], Nikolaus Buchmann[2;4], David Leistner[2;4], Ulf Landmesser[2;4], Ursula Wilkenshoff[2;3;4]

[1]Institute of Social Medicine, Epidemiology and Health Economics and Department of Cardiology, Charité University Medicine Berlin, Berlin, Germany, [2]German Center for Cardiovascular Research (DZHK), Partner Site Berlin, Germany, [3]German Society for Gender-Specific Medicine (DGesGM), Germany, [4]Charité University Medicine Berlin, Department of Cardiology, Berlin, Germany

Background: Severe mitral valve regurgitation (MR) is associated with poor prognosis in both women (w) and men (m). Left atrial remodeling might play an important role in these patients but has not been studied extensively with a focus on sex differences. Aim of this study was to evaluate the morphological and functional remodeling of the left atrium (LA) in w and m by advanced echocardiographic techniques and to determine prevalence of different types of MR.

Method: Retrospective observational study of 220 patients (pts) with severe MR presented to the Heart Team (HT) at a university hospital from 01/2019 to 12/2021. Type of MR was categorized by etiology in primary, secondary, mixed and others based on echocardiographic criteria described in 2021 ESC/EACTS Guidelines. Extensive evaluation of LA morphology (LA size, volume parameters) and function (LA functional index, LAFI) were performed in 192 w and m. With speckle-tracking LA strain all three LA phases, reservoir, conduit and contractile were measured. Two independent experts performed analysis with a vendor-independent software (TOMTEC, Germany).

Results: Less w (85, mean age 76 ± 9 y) than m (107, mean age 74 ± 12 y) with severe MR presented to the HT. Secondary MR (sMR) was most frequently reported (108; 56%), followed by primary MR (67; 35%), mixed (11; 6%) and others (6; 3%). Among pts with secondary (s) MR more m than w were categorized to MR due to left ventricular (LV) dysfunction (sLV MR m:w ratio = 2.7: 1.0). LV-EF in m was as reduced as in w (35%), confirmed by global LV strain values (-9.9%). In sLV MR pts LA volumes (biplane) were higher in m than w (132.8 ml ± 59 vs 98.61 ml ± 35.3) while w showed higher pulmonary pressure vs. m (TR Pmax 51.5 ± 13, 40.5 ± 16 mmHg). LA performance (LAFI) was not different for sex in pts with sLV MR. But the more detailed analysis of LA function (LA speckle-tracking) revealed that LA strain contractile function was better in w than m (p = 0.012), while LA strain conduit function (atrial compliance) was worse in w than m (p = 0.008).

Conclusion: Sex differences in LA function were observed in pts with severe MR due to LV dysfunction. Advanced echocardiographic techniques such as 3-phasic strain analysis of the LA indicate different LA remodeling mechanisms in w and m. Further studies are needed to confirm these data in order to provide a more personalised medicine.

P1.18 POSTERS

Who tests where and how often? Differences in testing incidence and testing locations between women and men during the course of the COVID-19 pandemic

Yolanda Mueller[1], Diane Auderset[1;2], Carole Clair[2], Maeder Muriel[1], Valérie Pittet[3], Joëlle Schwarz[1;2]

[1]Department of Family Medicine, [2]Department of Training, [3]Department of Epidemiology and Health Systems, Research and Innovation, Center for Primary Care and Public Health (Unisanté), University of Lausanne, Lausanne, Switzerland

Introduction: Gender differences in testing rates for SARS-COV-2 were noticed both internationally and within Switzerland during the COVID-19 pandemic. We aimed to describe differences between women and men in testing incidence and types of testing locations in the canton of Vaud.

Methods: This is a secondary analysis of surveillance data of SARS-CoV-2 tests performed in the canton of Vaud, Switzerland, reported based on criteria defined by the Federal Office of Public Health. Testing locations were categorized into testing centres, hospitals, pharmacies, private medical practices, laboratories, businesses, nursing homes, home-based care, schools, army, and prisons. We calculated unstandardized testing incidence, using the resident population of the canton of Vaud by the end of 2020, stratified by gender and age groups, and proportion of tests performed per location.

Results: Between May 23rd, 2020 and June 25th, 2021, 892'840 tests were reported in the canton, 464'912 for women (1.12 test per person), 426'765 for men (1.07 test per person), and 1163 (0.1%) with missing data on sex. Testing incidence was higher for women compared to men in age categories 10 years to 59 years old, and higher for men 60 years and over. Most tests were reported by testing centres (51.7%), followed by hospitals (10.2%), pharmacies (7.3%) and medical practices (5.0%). There were more women than men tested in all types of health structures (68.9% in nursing homes, 54.9% in hospitals, 53.4% in practices and 53.0% in pharmacies), and more men tested in businesses (62.6%), laboratories (52.7%), prisons (86.6%) and the army (97.2%). Gender distribution was balanced for tests reported from schools.

Discussion: Sex/gender differences in testing incidence vary according to age. Testing locations differ between women and men, reflecting gender differences not only in health behaviour but also in professional spaces. This warrants further investigation of testing behaviour by gender.

P1.19 POSTERS

Reduction in hospital admissions during SARS-CoV-2 pandemic: do any differences by sex exist?

Caterina Savriè[1], Ruana Tiseo[2], Giulia Marta Viglione[2], Elisa Misurati[2], Christian Molino[2], Alfredo De Giorgi[2], Fabio Fabbian[1], Franco Guerzoni[3], Nicola Napoli[3], Roberto Manfredini[4], Benedetta Boari[2]

[1]Department of Medical Sciences, University of Ferrara, [4]Department of Medical Sciences, University Center for Studies on Gender Medicine, Ferrara, Italy, [2]Clinica Medica Unit, [3]Planning and Management Control Unit, Hospital of Ferrara, Ferrara, Italy

Background: A review of the data collected during the first pandemic year from 20 different countries in the world, showed an overall 37% reduction in healthcare benefit. The most significant peak was recorded for the outpatient visits (-42%) and the nadir for hospital admissions, HAs (-28%) (Moynihan, BMJ Open 2021). In Italy, we estimated a reduction in planned and emergency hospital admissions of about -49.9% and -24% respectively, with significant differences from region to region (54° Rapporto Annuale CENSIS 2020). In the Emilia Romagna region there was a reduction in discharges from health services of about -17% compared to 2019. The most relevant reduction was recorded in planned healthcare activity (-23.8%) compared to the emergency one (-10.5%).

Aim of the Study: To evaluate the possible existence of sex differences (SD) in the reduction of the HAs during the years 2020 and 2021, compared with the year 2019.

Methods: We used the regional data of all discharges (either COVID-free and COVID-related) from public and private health structures. Data were classified by medical or surgical Diagnosis Related Group (DRG), Major Diagnostic Category (MDC), and sex (Males, Females).

Results: In 2020 there was a slight SD in the reduction of HAs both for the total (M: -16%, F: -17.9%) and scheduled HAs (M: -23.2%, F: -24.4%). This SD was more relevant in urgent HAs (F: -12.4%; M: -8.2%) and in planned medical HAs (F: -23%, M: -19.4%). During 2021, all HAs showed an increase except for the planned medical one (-1.8%), but the resumption of HAs was still far from pre-pandemic levels. No significant SD were detected in 2021 compared to 2020, except for the emergency surgical HAs which presented a double recovery in M (+10.3%) compared to F (+5.3%), reaching values similar to 2019 (-1.0%). The emergency medical HAs in F in 2021 was further decreasing compared to 2019 (F: -10.1% vs. M: -6.0%).

Conclusions: Data analysis showed a SD in HAs with a disadvantage for F, and this inequality is more evident for urgent HAs and planned medical HAs. In conclusion, univocal data from the literature has demonstrated that SARS-CoV-2 pandemic strongly impacted the health services but this reduction, in the Emilia Romagna region, is more significant, and alarming, for F not only during the first 2020 pandemic wave but maintaining also in 2021.

P1.20 POSTERS

Prevalence of fatigue and the role of gender in a small sample of Italian survivors of first wave COVID 19 infection

Maria Gabriella De Silvio[1], Paola Martucci[2], Antonella Serafini[3], Elena Lanteri[4]

[1]Distretto Sanitario 60, ASL Salerno, Nocera Inferiore, Italy, [2]Oncopneumoematology, AORNA Cardarelli, Naples, Italy, [3]Pneumology, Civil Hospital, Imperia, Italy, [4]Retired

Months after healing, a number of COVID-19 syndrome survivors are still affected by psychological and physical limitations [1]. As the presence of these limitations is one of the aspects of the Long COVID syndrome, we investigated this issue by means of a questionnaire based on the Fatigue Assessment Scale (FAS) [2]. The questionnaire consists in 10 questions, 5 dealing with physical fatigue and 5 with mental fatigue. We enrolled in our study 23 patients (13 males and 10 females) of Western Liguria that survived the first wave of the pandemic. The patients filled the FAS based questionnaire twice: (i) a few weeks after discharge from hospital or home confinement and (ii) a few months later. The outcome of the two questionnaires were statistically analysed both separately as well as comparatively. The analysis was carried out on (i) total scores, (ii) scores of the physical and mental subsets, and (iii) scores for each question.

In the initial stages of the recovery all patients weremore affected by physical than mental fatigue. Females were significantly more affected than males by both types of fatigue. The role of gender turned out to be significant also in the evolution of fatigue. In particular, while all males reported a significantly reduced level of fatigue in the second questionnaire, 40% of the females reported a significantly increased fatigue level, triggering further investigation aimed to verify the possible onset of Long Covid. The presence ofsuch an amount of females with increased fatigue led also to the fact that no significant variation was found for females between the two questionnaires. In summary our study shows that females are more affected and more persistently by COVID related fatigue.

P1.21 POSTERS

Public health strategies and SARS-CoV-2 testing in Switzerland: a gender perspective

Diane Auderset[1,2], Joëlle Schwarz[1,2], Valérie Pittet[3], Maeder Muriel[1], Carole Clair[2], Yolanda Mueller[4]
[1]Department of Family Medicine, [2]Department of Education, Research and Innovation, [3]Department of Epidemiology and Health Systems, [5]Department of Family Medicine, Center for Primary Care and Public Health (Unisanté), University of Lausanne, Lausanne, Switzerland

Introduction: Testing for SARS-CoV-2 has proven an essential public health measure for epidemic control. Gender differences in testing have been reported worldwide, with women having higher testing rates than men, including in Switzerland. Swiss public health strategies on test reimbursement have changed over time, and little is known on the potential association of these changes with differences in testing rates between women and men.

Methods: Data on SARS-CoV-2 testing from May 23, 2020 to June 30, 2021 were extracted from the federal surveillance system for canton of Vaud, Switzerland. The outcome of interest was test incidence (number of tests per person per week per population). We identified three periods with different reimbursement strategies: 1st period (P1) only symptomatic people; P2 enlargement of symptoms criteria and close contacts; and P3 widespread testing, including asymptomatic cases. Incidence rate ratios (IRR, with 95% confidence intervals (CI)) for gender were calculated overall, and per period. In addition, interaction between gender and 10-years age categories was modelled to explore variations of test incidence by gender and age.

Results: On average, women were tested more than men (IRR 1.05, 95% CI: 1.04 - 1.06), with no difference across periods (respective IRR of 1.09, 1.10 and 1.05, with overlapping CIs). However, gender disparities varied with age; women aged 20 to 29 years were tested 14% more (IRR 1.14, 95% CI: 1.06 - 1.23), and women aged 30 to 39 15% more (IRR 1.15, 95% CI: 1.07 - 1.24), compared with men in the respective age category. There were no significant gender difference for younger or older age groups (p-values > 0.05).

Conclusion: Gender disparities in testing do not appear related to variations in reimbursement criteria over time. However, it is related to age, with greater differences observed in young adults. Gender disparities in COVID-19 testing thus seem driven by the young adult population, which should be further investigated. Similarly, defining finer social categories, such as considering the socio economic position, may be key to a better understanding of the observed gender disparities.

P1.22 POSTERS

AIFA Registry and COVID-19: the Aretusea experience of Remdesivir according to gender

Sabrina Regolo[1,2], Michela Cirillo[2,3], Manuela Cuconato[2], Maria Gabriella De Silvio[4], Cinzia Fatini[3]
[1]UOC Pharmacy, P.O. Umberto I, Siracusa, Italy, [2]Giseg Giovani, Italy, [3]Experimental and Clinical Medicine, University of Florence, Firenze, Italy, [4]ASL Salerno, Salerno, Italy

Epidemiological data about COVID-19 disease highlighted the evidence of gender differences, with often more unfavorable scenarios for men. The mechanisms underlying these gender differences are various and still not fully elucidated. The aim of this study was to evaluate gender differences in the treatment with remdesivir with active AIFA Registry in patients with SARS-CoV-2. This single-center retrospective observational study involved 162 patients (110 males, 52 females) suffering from SARS-CoV-2 and referred to the U.O.C. Infectious diseases of the P.O. Umberto I of Syracuse in the period from 29/10/2020 to 22/10/2021 and undergoing treatment with remdesivir. Remdesivir prescriptions were carried out in accordance with the eligibility and prescriptive appropriateness criteria reported in the web-based AIFA Registry. Infected women had median age lower than men (58.9 yrs vs 59.3 yrs). Only 0.9% of men at the time of hospitalization, had received the first dose of COVID-19 vaccine vs 3.8% of women. All patients were treated with enoxaparin, steroids and antibiotics. Along with remdesivir, 50% of the women, and 55.4% of the men, underwent treatment with tocilizumab at an early stage of the disease. It is evident that men contract the infection more frequently than women. The outcome was more unfavorable in men than women, with 3.6% of deaths among men vs 1.9% among women. The average age of men who died and tested positive for SARS-CoV-2 was 73.2 vs. 55 years of women. The days of hospitalization were on average 11 for both men and women. Of the total number of patients enrolled, about 19% underwent assisted ventilation, 21% of them were men, while 14% were women. The most common comorbidity was the metabolic syndrome, occurring in the 30% of men and about the 15% of women ($p = 0.07$). Respiratory and cardiovascular failures were the most common complications in people who died. Gender approach in clinical practice is fundamental in the context of the current COVID-19 pandemic, as it could greatly contribute to the effectiveness of diagnostic and/or therapeutic approaches, with clear benefits mainly for affected people, but also for the sustainability of the National Health Service.

P1.23 POSTERS

Gender differences in no-COVID patients mortality during pandemic years 2021-2022: an internal medicine Italian report

Tiziana Ciarambino[1], Elena Barbagelata[2], Sara Rotunno[3], Desirè Addesi[4], Cecilia Politi[5]

[1]Internal Medicine, ASL Caserta, Caserta, Italy, [2]Internal Medicine, ASL Chiavarese, Chaivari, Italy, [3]Internal Medicine, ASL Roma, Rome, Italy, [4]Internal Medicine, Azienda Ospedaliera Pugliese "Ciaccio", Catanzaro, Italy, [5]Internal Medicine ASREM, F. Veneziale Hospital, Isernia, Italy

Premise and study aim. In Italy, according to the ISTAT data, at the end of 2020, more than 30.000 deaths were observed not attributable to Covid-19. To verify if this occurred also in our patients, we valued the inpatient mortality in 5 NO-COVID Internal Medicine Departments representative of 5 regions of Italy (North, Centre and South), as benchmark for an area of more than 700.000 inhabitants.

Material and Methods: We examined 15.420 hospital admissions in NO-COVID Internal Medicine Wards. We compared the hospital admissions (patients discharged and died) during the pandemic years 2020 and 2021 with the 2019 admissions, assessing the differences in mortality rate between the years and genders, and if the differences detected had statistical significance.

Results: Total mortality presented an increasing trend from 2019 to 2021 (statistically not significant). Hospital mortality in males was reduced in 2020 and unchanged in 2021. In our 5 Internal Medicine Wards we observed 15.420 admission and 1631 death. Hospital mortality in females showed a stable increasing trend, statistically significative by 2019 (IC:2.05-2.27, OR:2.16), to 2021 (IC:2.03-2.25, OR:2.14).

Conclusions: We speculated that the delayed hospitalization of patients more ill and with lower chances of survival mainly due to "fear of infection", in conjunction with the drastic reduction/absence of territorial activities of diagnosis and treatment (from March 2020, with further impact on chronicity in 2021), could be responsible for the stable increase of in-hospital mortality detected in our wards. Difference in mortality was statistically significant in female population, and this data could be attributable both to a greater fragility of female patients (often older, living alone, with less economic resources and education) and to their role as "main care givers" in the pandemic. Women assured during all this period assistance to sick family members (parents, partner, sons…) delaying proper attention to self-health.

P1.24 POSTERS

Thrombosis and bleeding after COVID-19 vaccination: do sex differences matter? On behalf of representatives for Gender Medicine of Scientific Hospitalization and Treatment Institutes

Elvira Grandone[1;2], Susanna Chiocca[3], Serenella Castelvecchio[4], Milena Fini[5], Rossella Nappi[6]

[1]IRCCS Casa Sollievo della Sofferenza, San Giovanni Rotondo, Italy, [2]Medical and Surgical Sciences, University of Foggia, Foggia, Italy, [3]IEO, [4]IRCCS Policlinico San Donato, Italy, [5]IOR, [6]IRCCS policlinico S. Matteo, Pavia, Italy

Gender medicine deals with differences in approaching diagnostic work-up and management according to gender. Although the issue is relevant in every field of medicine, it is often neglected.

The recent pandemic due to SARS-CoV-2 virus raises this matter even more urgently. In fact, available literature has suggested a higher number of deaths among infected males than in females and more side effects in women than in men recipients of certain vaccines against COVID-19.

In this narrative review, we critically revised sex-disaggregated data on thrombotic and bleeding events associated with vaccination against COVID-19.

Thrombotic complications are by far more frequently reported than bleeding events after vaccination and are mostly observed in young women who are administered with viral-vectored vaccines.

Bleeding complications are mainly reported as aggregated data, whereas thrombocytopenia is reported to occur in the presence or absence of thrombotic complications. This information is relevant, as it underlines the need to differentiate thrombocytopenia occurring with- or without-thrombosis; indeed, management and prognosis are different according to the presence of thrombotic events. Conflicting data are available on the prevalence of bleeding events according to sex in recipients of viral-vectored vaccines. Lastly, clinical data on vaccination against SARS-CoV-2 during pregnancy show that its safety-efficacy profile is high. However, further data are needed and will be obtained from ongoing trials.

In conclusion, available literature on sex -disaggregated data and on the possible role of hormones in thrombotic and bleeding complications after vaccination against COVID-19 is still largely lacking. In view of the role played by platelets in the pathogenesis mechanism of both thrombotic and bleeding complications, future studies should be focused on platelets and on global tests as thrombin generation assays.

Italian Ministry of Health* N. Luciani Roma; M. Allena Pavia; M. Appetecchia Roma; I. Aprile Milano; G. Banfi Milano; S. Bargagna Calambrone (PI); N. Bergonzi Concesi Roma; G. Borsellino Roma, S. Castelvecchio San Donato Mi (MI); A. Cattaneo Brescia; A. Cherubini Ancona; S. Chiocca Milano; P. Cudia Venezia; L.A. Dalla Vecchia Milano; L. Del Mastro Genova; M.B. Donati Pozzilli (IS); C. Farina Milano; P. Fenu Candiolo, To; M. Fini Bologna; L. Folini Sesto

San Giovanni (MI); B. Garavaglia Milano; S. Gori Valpolicella (VR); E. Grandone San Giovanni Rotondo, Foggia; S.Greggi Pascale, Napoli; C.Invitti , Milano; MP Landini Bologna; V. Lapadula Rionero in Vulture; G. Liuzzi – Roma; A. Maestro Trieste; C. Mannelli Candiolo (TO); R. Masetti, Roma; E. Mazzon Messina; R. Miceli (MI); P. Mosconi (MI); O. Nanni Meldola (FC); M. Napolitano Roma; R. Nappi Pavia; M.C. Parravano Roma; F. Pea Bologna; F. Provini Bologna; E. Ravizza Milano; B. Riboldi Reggio Emilia; G. Rosano Roma; A. Sapino, Candiolo (TO); G. Toffoli Aviano (PN); D. Trabattoni Milano; P. Viale Bologna; T.M. Zacheo (Ve); G. Zollesi Candiolo (TO)

P1.25 POSTERS

The influence of sex, gender, and age on COVID-19 data in the Piedmont Region (Northwest Italy): the virus prefers men

Silvia De Francia[1], Alessandro Ferretti[2], Francesco Chiara[1], Sarah Allegra[1], Daniele Mancardi[1], Tiziano Allice[3], Maria Grazia Milia[3], Gabriella Gregori[3], Elisa Burdino[3], Claudio Avanzini[3], Valeria Ghisetti[3], Alessandra Durio[4]

[1]Department of Clinical and Biological Sciences, [2]Department of Physics, [4]Department of Economics and Statistics "Cognetti de Martiis", University of Turin, Turin, Italy, [3]Laboratory of Microbiology and Virology ASL Turin, Italy

Several important sex and gender differences in the clinical manifestation of diseases have been known for a long time but are still underestimated. The infectious Coronavirus 2019 disease pandemic has provided evidence of the importance of a sex and gender-based approach; it mainly affected men with worse symptomatology due to a different immune system, which is stronger in women, and to the Angiotensin-converting enzyme 2 and Transmembrane protease serine 2 roles which are differently expressed among the sexes. Additionally, women are more inclined to maintain social distance, smoke less, and are more skilled with personal hygiene. Analysis of data on the infectious Coronavirus 2019 disease testing from people admitted to the Amedeo di Savoia Hospital, a regional referral center for infectious diseases, has been applied to the whole of 2020 data (254,640 records). A high percentage of data in the dataset was not suitable due to a lack of information or entering errors. Among the suitable samples, records have been analyzed for positive/negative outcomes, matching records for unique subjects (N = 123,542), to evaluate individual recurrence of testing. Data are presented in age and sex-disaggregated ways. As a central point of the huge work conducted on four different identified periods of 2020 year, interesting information on the disease outcome obtained from a general analysis of COVID-19 symptoms referred in a sex, age, and outcome test-disaggregated way, showed that male sex and older age were risk factors for more severe disease. Analyses of the suitable sample also concerned the relation between testing and hospital admission motivation and symptoms. Sex and gender medicine does not exist. What should definitively exist is a medical approach tailored on the variables and characteristics of each subject needing clinical assistance. Our analysis indicated that a sex and gender-based approach is mandatory for patients and for the National Health System's sustainability. Statistical models like ours developed could be applied in general for human diseases, giving the opportunity to better understand the mechanisms underlying pathologies in the interest of the whole community.

P1.26 POSTERS

COVID-19 pandemic lockdown - A public health perspective on gender differences in patients with severe heart disease

Ursula Wilkenshoff[1,2,3], Nikolaus Buchmann[1,2], Andrea Heuberger[1], David Leistner[1,2], Ulf Landmesser[1,2], Ute Seeland[1,2,3,4]

[1]Department of Cardiology, Charité University Medicine Berlin, Berlin, Germany, [2]German Center for Cardiovascular Research (DZHK), Partner Site Berlin, Germany, [3]German Society for Gender-Specific Medicine (DGesGM), Germany, [4]Institute of Social Medicine, Epidemiology and Health Economics, Charité University Medicine Berlin, Berlin, Germany

Background: It is known that patients with heart disease were reluctant to seek necessary medical help due to fear of infection and reduced hospital capacity during the Covid-19 pandemic. Data facing changes in this behavior of women (w) and men (m) with severe heart diseases might be useful to identify most vulnerable subgroups. Aim of this study was to analyze gender differences of patients requiring further intervention who were presented at the regular Heart-Team Meetings (HTMs).

Methods: A retrospective analysis was performed of 728 patients discussed at HTMs from March 2019 to March 2021 at a German cardiology department. Contact restriction ("lockdown") started by the 22nd of March 2020. Data was collected by reviewing the protocols of the HTMs. Patients presented at the HTMs the year before lockdown were compared to those presented the year during lockdown. Results were analyzed regarding quantity, age, sex, type of heart disease and recommended procedures.

Results: Complete data was available for 728 patients (38% w; mean age 76 ± 10, m 73 ± 11 years). After March 2020 24 % less patients with severe heart diseases were discussed. Type of heart diseases presented at the HTMs were 39.3% (n = 286) of all cases with aortic valve stenosis (w = 110 < m = 176; before lockdown (ld): w = 53 < m = 97, in ld w= 57 < m = 79), 22.5% (n = 164) with coronary artery disease (CAD; w = 42 < m = 122; before ld w = 21 < m = 62; in ld w = 21 < m = 60; n.s.) and 22,1% (n = 161) with mitral valve regurgitation (w = 82 > m = 79; before ld: w = 45, m = 45; in ld w = 37, m = 34; n.s.). During ld interventional procedures (PCI) were significantly more often recommended for w than m with CAD compared to coronary artery bypass grafting

(p = 0.043).

Conclusion: Considerably less women 38 % than men 62 % with severe heart diseases were presented at the Heart-Team Meetings before lockdown. During lockdown the number of discussed patients decreased by 24 %. Data show that among these "missing" patients the number of men was twice as high as women. The highest decline during the lockdown was observed in men with aortic valve stenosis, followed by both gender with mitral valve regurgitation. The number of women and men presented with CAD did not differ before and during lockdown, however the recommended procedures were significantly different with more PCIs and equivalent less CABG in women but not in men.

P1.27 POSTERS

Gender differences in the psychopathological impact of the fourth pandemic wave of SARS-CoV2 on healthcare workers: results of the "COVID-19 Stress-Test" study at the hospital of Teramo

Lia Ginaldi[1], Massimo De Martinis[1], Domenico De Berardis[2], Ilenia Senesi[3], Anna Ceci[4;4], Maurizio Brucchi[5], Maurizio Di Giosia[5], Merty Taraborrelli[6], Emanuela Zenobi[6], Giovanni Muttillo[4]

[1]Department of Clinical Medicine, Public Health, Life and Environmental Sciences, University of L'Aquila, L'Aquila, Italy, [2] Department of Mental Health, [3]Pharmaceutical Department, [4]Health Professions Department, Hospital of Teramo, Teramo, Italy, [5]General Direction, Local Health Authority Teramo, Teramo, Italy, [6]Hospital of Teramo, Teramo, Italy

Exposure to organizational, relational, psychological and personal safety conditions represents a source of work-related stress for health professionals, often with important gender connotations. The COVID-19 pandemic has further exacerbated the emotional pressure to which medical and nursing staff are subjected in various health service settings. This study is aimed at evaluating the psychological / psychiatric well-being and analyzing the gender differences in the perception of work-related stress among health workers during the fourth pandemic wave in a large sample of physicians and nurses in the hospital of Teramo. A cross-sectional study was carried out on the perception of work-related stress in a sample of health workers belonging to different departments and services. In the period from May 2021 to June 2021 the following scales were administered to the health personnel under study, through a reserved platform: Stress and Anxiety during the Viral Epidemic (SAVE-9), Maslach Burnout Inventory (MBI), Irritability-Depression-Anxiety Scale (Idas), Toronto Alexithimia Scale - 20 (TAS-20), Beck Hopelessness Scale (BHS), Intolerance of Uncertainty Scale-Revised (IUS-R). Data from 1445 healthcare workers overall, with an average age of 44.2 years, were evaluated. Of these, 72.4% were women and 27.6% were men. Higher levels of burnout, irritability and hopelessness were found among women, who also experienced more anxiety / depressive symptoms than men. Healthcare professionals directly involved in COVID-19 wards presented higher levels of anxiety, irritability and hopelessness and greater stress related to the pandemic, but not greater depressive symptoms, intolerance to uncertainty, burnout or alexithymia. Finally, all health workers who contracted SARS-CoV2 infection showed significant levels of psychological and psychiatric distress. The COVID-19 pandemic has subjected healthcare workers to significant emotional overload and varying levels of stress, with significant gender-differentiated psychopathological repercussions. The results of our study confirm the need to use suitable gender-oriented strategies to prevent the mental health of healthcare personnel.

P1.28 POSTERS

Complete dental care sessions in special needs individuals: a single-centre retrospective study on 1276 patients

Paola Salerno[1], Vladimiro Lanza[1], Agostino Guida[1]

[1]UOC Odontostomatologia, AORNA Cardarelli, Naples, Italy

Special Care Dentistry is concerned with providing and enabling the delivery of oral care for non-cooperating and or non-autonomous people with a different kind of disability or a combination of an amount disabling factors, sometimes referred to as Special Needs Individuals. When these patients are not suitable even for a first visit on dental unit under local anaesthesia, lack of fundamental dental care (tooth fillings, oral hygiene, avulsions) may have bad consequences, such as abscesses or the necessity of hospitalization for emergency care, which would be complicated by aforementioned conditions. To perform dental care in such patients at UOC Odontostomatologia, AORNA Cardarelli, Naples, Italy, all consecutive special needs patients from 2003 to 2020, have undergone every 6/8 months a Complete Dental Care Session in conscious sedation, reserving general anaesthesia only to patient ineligible for conscious sedation. During the sessions, inspection, x-ray exams, tooth decay, scaling and root planning, teeth extraction were performed. Treatment provide caregiver's instruction of dental hygiene. Dental/anesthesiological feasibility and complication rate were analysed; dental emergencies during the in-between periods were recorded. 1276 patients received complete dental care every six-eight months. Only 3 patients had general condition for which was indicated to perform general anaesthesia. Preliminary data analysis showed that no patients undergoing conscious sedation experienced major complication due to intravenous drugs. One patient who underwent conscious sedation experienced oxygen desaturation and was thus intubated; no further consequences were suffered. Data showed a drop of dental avulsions in

patients undergoing multiple sessions and no patient experienced dental emergency during the period of time amongst the complete sessions. With proper anaesthesiological evaluation, data shows that complete dental care sessions are a safe and effective way to prevent dental emergencies in special needs patients. Furthermore, patients undergoing regular complete dental care session are less likely to need tooth avulsion. Drop of dental acute events and teeth's life lengthening may have a tremendous impact on such individuals' quality of life, their families' and community.

P1.29 POSTERS

Practicing feminist medicine: intersectionality in the quest for inclusive healthcare

Lior Baruch[1;2;3], Leeor Shachar[4]

[1]Department of Family Medicine, Sackler Faculty of Medicine, [4]The Department of Sociology and Anthropology, Tel Aviv University, Tel Aviv, Israel, [2]Family Medicine, Maccabi Healthcare Services, Tel Aviv, Israel, [3]HealthyHer Feminist Medicine, Ramat Hasharon, Israel

Gender medicine helps reduce health disparities by addressing knowledge gaps resulting from years of male-focused research. While biological differences between the sexes are often emphasized, the impact of gender as a social construct on health receives less focus. To address health disparities that stem from societal power structures, we propose to apply feminist principles to medical practice.

Feminism is defined as the advocacy of the political, economic, and social equality of the sexes, traditionally focusing on women's rights. Feminist medicine addresses the ways gender roles, violence, ethnic conflicts, and discrimination affect the health and wellbeing of both women and men. It is specifically mindful of the intersections of sex and gender with sexual orientation, ethnicity, social class, ability status, age, and body morphology.

Inclusivity, as a central principle of feminism, is reflected in actions taken to promote under-represented groups' accessibility to healthcare, while the feminist principle of sharing power translates into shared decision making. The principle of dismantling bias is represented in reflective techniques and in awareness of power dynamics. It is also expressed in proficiency in gender medicine and LGBTQAI+ medicine, as well as in medical issues that arise from gender-based violence, minority stress and micro-aggressions, cosmetics and beauty industry, pornography, and the effect of socialization on neuro-psychiatric pathology.

As physicians who have been practicing, researching, and teaching feminist medicine for over a decade, we aim to present its principals, to explain how it differentiates from gender medicine and from cultural competence, and why it is exceedingly essential in the era of personalized medicine.

P1.30 POSTERS

Between gender medicine and feminist medicine: implementation in medical education

Leeor Shachar[1], Lior Baruch[2]

[1]Sociology & Anthropology, [2]The Family Medicine Department, Tel Aviv University, Tel Aviv, Israel

Medical educators have many times believed that medical knowledge is gender neutral, or that gender is a political, rather than medical, issue. However, gender bias exists in every field of medicine practice and research.

Gender medicine has arisen to correct a historical injustice. Studies since the first days of modern biomedicine have been conducted exclusively on men and on males. Sex differences, it seemed then, were only differences in average size and in the reproductive organs. Gender medicine emphasizes the differences in every single body organ and system, and therefore – in disease epidemiology, clinical presentation, drug responses, and prognosis.

Nevertheless, gender medicine still stems from a positivistic, biomedical, paradigm. Feminist medicine, however, argues that in order to correct the gender-based injustice in medicine, we have to take into account social power relations. To deal with cultural differences, minorities and vulnerable populations, with violence, with multiple forms of oppression that take place in all medical fields and in every stage of practice and research.

As physicians who practice, teach, and research feminist medicine, we will shed light over the ways by which gender identities and power differentials are being created and perpetuated in medical education, and explain the need for feminist theoretical approach. We will address the differences between gender medicine and feminist medicine and explain how to implement feminist theory in medical education.

P1.31 POSTERS

Sex and gender integration in the Swiss medical curriculum (S&G integration): example of a national strategy

Virginie Schlueter[1], Diane Auderset[1], Joëlle Schwarz[1], Carole Clair[1]

[1]Switzerland, Health and Gender Unit, Department of Education, Research and Innovation, Center for Primary Care and Public Health (Unisanté), University of Lausanne, Lausanne, Switzerland

Since January 2021, a Swiss nationwide network is working on a common program to promote sex and gender integration in the training of future physicians and nurses. This ambitious program aims to federate resources and harmonize practices. The presentation

will focus on the strategy, the tools that have been created and made available and the future steps.

Integration of sex and gender dimensions is mandatory in the teaching of Swiss medical students. General objectives were set at a national level but their operationalization remain an important challenge. In order to progress in a coordinated way, we joined our forces and agreed upon a referential to guide the action in all Swiss medical schools or faculties. Moreover, from the first stage of this project, we collaborated with one nursing school in order to promote an interdisciplinary vision.

Challenge 1: to bring together 10 medical schools and one nursing school, from 3 different language regions (German, French, Italian)

Challenge 2: to share a common culture and common goals

Challenge 3: to respect the academic flexibility of the universities

The project is based on seven axes. The most important of these are the establishment of a common frame of reference (the core curriculum) which is a consensus defining the structure (1) and content (2) of teaching and the creation of an electronic platform (3) hosting teaching materials available for sharing. We also focused on the institutional anchoring of the project (4), by encouraging the involvement of stakeholders (deans, teachers, students). We planned communication actions (5) (newsletter, networks, newspapers) and organized the project management [coordination (6) and evaluation (7)].

After presenting the project and its results, we will propose a discussion to share our experiences with other universities.

The project is supported by swissuniversites.

P1.32 POSTERS

Sexism and sexual harassment among medical students: prevalence and consequences on mental health - a Swiss cross-sectional study

Jeanne Barbier[1], Carrard Valerie[2], Joëlle Schwarz[1], Berney Alexandre[2], Carole Clair[1]

[1]Health and Gender Unit, Department of Education, Research And Innovation, Center for Primary Care and Public Health (Unisanté), University of Lausanne, Lausanne, Switzerland, [2]Psychiatric Liaison Service Lausanne University Hospital and University of Lausanne, Lausanne, Switzerland

Background: Corollary to the increasing number of women among medical students, sexism and sexual harassment represent the leading subtypes of mistreatment reported by medical students and residents. Nevertheless, the association between sexism/sexual harassment and specific mental health outcomes remains to be quantified.

Method: An online survey was sent to all medical students of the University of Lausanne, Switzerland. We conducted multivariate regression analyses of the association between being targeted by sexist or sexual harassing attitudes and mental health (scores for depression [CES-D], suicidal ideation, anxiety [STAI-T], stress, burn-out [MBI-SS], substance use [ASSIST], and recent psychotherapy). Regressions were adjusted for gender, phase of studies, native language, parental education level, partnership, and paid job.

Results: Being targeted by sexism or sexual harassing attitudes was reported by 16% of all students (N = 1033) with a great majority of women (96%). Physicians and/or teachers were reported as perpetrators by 85.4% of exposed students. Sexism or sexual harassing attitudes happened in larger proportions during the clinical immersion phase compared with the preclinical theoretical phase of studies (42.1% vs 5.5%, p-value < 0.001). Overall, almost half of the students (48%) were at risk for clinical depression and only one third (35%) had a low anxiety score. Associations between being targeted by sexism/harassment and depression risk (B = 2.61, p = 0.011), suicidal ideation (B = .39, p < 0.001), anxiety (B = 3.40, p < 0.001), cynicism component of burnout (B = 1.83, p < 0.001), substance use (B = 5.83, p = 0.001) and recent psychotherapy (OR 1.75, p = 0.005) were found after adjusting for covariates.

Conclusions: Non-male students are targeted by sexism and sexual harassing attitudes more than male students. These discriminations occur predominantly during clinical rotations and have significant impact on mental health.

P1.33 POSTERS

Preventing sexism and sexual harassment in medical schools by using theater of the oppressed as an interactive and reflexive tool

Lüthi Emmanuelle[1], Pichonnaz Lauriane[2], Joëlle Schwarz[2], Pascal Morier-Genoud[3], Caroline Dayer[4], Ilire Rrustemi[2], Léa Schilter[2], Berney Alexandre[5], Caroline John[5], Julie Dubois[1], Pierre-Yves Rodondi[1], Carole Clair[2]

[1]University of Fribourg, Institute of Family Medicine, Fribourg, Switzerland, [2]Health and Gender Unit, Department of Education, Research and Innovation, Center for Primary Care and Public Health (Unisanté), University of Lausanne, Lausanne, Switzerland, [3]Theater company Le Caméléon, Lausanne, Switzerland, [4]Canton de Vaud, General Secretariat of the Department of Education, Youth and Culture, Lausanne, Switzerland, [5]Department of Psychiatry, University of Lausanne, Lausanne, Switzerland

Background: Along the #metoo global movement, voices condemning a context prone to sexism and sexual harassment raised from clinical settings in Switzerland. This included women medical students who denounced their double exposure to problematic power dynamics being women and students. Studies and press articles on this phenomenon struck the public opinion, and

clinical institutions reacted by setting-up preventive interventions. We describe the development and implementation of an interactive training in two Swiss medical schools that aimed at supporting medical students in identifying and reacting to sexism and sexual harassment as targets, witnesses or perpetrators.

Development: Various actors were included in the design of the training format and content: medical students, gender experts, psychiatrists, mediators, occupational physicians and comedians. Both medical schools opted for the utilization of the Theater of the Oppressed as an interactive and reflexive tool, with different implementation modalities.

Results: This collaborative and interactive implementation showed that different forms of a training course can be implemented with similar objectives in an adaptable and transferable manner. Both courses were based on identifying and acting on concrete problematic situations by focusing on individual, collective, and institutional resources. Format and content adaptations were made based on an external evaluation, students' evaluations, and on regular meetings with lecturers, students and comedians. The main elements of adaptation were a stronger focus on the potential role of witnesses in intervening in situations of sexism or sexual harassment, and avoiding a discourse that puts pressure on targets to react and disclose such situations. Students reported a high level of satisfaction.

Conclusions: Overall, the Theater of the Oppressed was an appropriate approach to reach the objectives. The collaborative process enabled continuous adaptation of the training.

P1.34 POSTERS

Gender differences in eating habits of Italian children

Annalisa Silenzi[1], Rosaria Varì[1], Francesca Ceppetelli[1], Roberta Masella[1], Beatrice Scazzocchio[1]

[1]Centre for Gender-Specific Medicine, Istituto Superiore di Sanità, Rome, Italy

Dietary habits are acquired through a gradual process that begins early in life and is strongly influenced by individual biological component and by many external factors such as family and socioeconomic contexts. Gender is an important factor influencing lifestyle and, consequently, the onset and course of chronic diseases. Several studies carried out in adults have shown significant differences in food preferences and dietary behaviors between males and females. Men and women may be, thus, differently exposed to nutritional risk factors. However, very few data are available to define whether some differences exist also between young girls and boys.

This study assessed the eating habits and the degree of adherence to the Mediterranean diet of 11-13 years old children and their parents, to evaluate possible influences of gender and family context on their eating choices and behaviors.

To this purpose, 390 questionnaires filled in by children, 145 filled in by parents and 290 filled in by parents reporting their children's habits, were collected in 25 first level secondary schools located in 6 Italian regions (Lazio, Basilicata, Campania, Toscana, Marche, Umbria) participating to the nutrition education program MaestraNatura.

The questionnaire analyses showed an average degree of adherence to the Mediterranean diet for both children and parents. The analysis of individual child's responses revealed interesting differences between girls (F) and boys (M) in the daily consumption of fruit and vegetables (F > M) and of at least 2-3 cereal servings (M > F), in the habit of having breakfast at least 5 days a week (M > F) and in the consumption of carbonated/sweetened drinks (M > F). Moreover, by matching the questionnaires filled in by parents and their children we showed that some healthy habits (consumption of legumes, more than one portion a day of fruit and vegetables, fish) are hard to transfer to children.

In conclusion, Italian children show gender differences in eating behaviors. In addition, some healthy habits of parents are hardly transferred to the children. Thus, preventive nutrition education strategies, involving school and family, and specifically addressed to girls and boys, are needed to make children aware of the importance of a healthy lifestyle and to correct inadequate eating habits.

P1.35 POSTERS

Gender specific medicine applied: Piedmont generalist physician training

Gabriella Tanturri[1;2], Maria Milano[1]

[1]Scuola di Formazione Specifica in Medicina Generale del Piemonte, Azienda Sanitaria Locale "Città di Torino" Regione Piemonte, Turin, Italy, [2]Associazione Italiana Donne Medico, Consiglio Nazionale, Rome, Italy

Despite the promulgation of the 06/19 operational plan of Law 03/2018 with training objectives for the transition from androcentric to gender-specific medicine, knowledge about sex and gender diversity is still not applied in clinical practice. The androcentric orientation of the content of the texts used in the years of study has conditioned a medical view that is not inclusive of gender differences in the same diseases. Cardiovascular disease is the leading cause of female death in Italy, but more than half of Turin physicians in 2017 were unaware of this. Family physicians are the first health reference of people, prescribers of therapies and with the power to activate diagnostic investigations and direct specialists.

The coordination of the Piedmont School of Specific Training in General Medicine has included a three-year course on Gender Specific Medicine in the Programmatic Teaching **Plan:** An annual 4-hour seminar, with verification of knowledge acquired. The first-year program included the history, significance, and

evolution of gender-specific medicine, plus gender-specific cardiology and pharmacology, preparatory to subsequent seminars. At the end, students were asked to propose topics for further study the following year. Top rated by the 375 students: psychiatry, cardiovascular, oncology, etc. The second year's program took into account requests, but also unperceived needs. The third year will address violence in its various forms, clinical manifestations, medical-legal aspects and solutions. The distance learning methodology has alternated between frontal parts, not exceeding 20 minutes, and direct interactions with classroom surveys and discussion of numerous clinical cases.

Results: The multimedia teaching tool has allowed the simultaneous participation of all processing contributions in real time. Positive feedback has denoted the obvious interest in a perspective NOT addressed during the course of study.

Conclusion: The effectiveness of the training will be evaluated by a multidisciplinary team using measurement scales validated in social psychology.

P1.36 POSTERS

Italian health professionals explore the sex and gender dimension

Teresa Calandra[1,*], Fulvia Signani[2], Chiara Annovazzi[3], Michela Lenzi[4], Giovanni Di Biase[1,*] and the Sex and Gender Approach Project (SeGeA) / Research EngHea Team[**]

[1]Federazione Nazionale Ordini TSRM e PSTRP, Rome, Italy, [2]University of Ferrara, Italy; EngHeaAPS President, [3]University of Milan Bicocca, Milan, Italy; EngHeaAPS, [4]Università di Padova, Padua, Italy; EngHeaAPS

From the first moment, the FNO TSRM e PSTRP has worked on the identification of transversal values and, through a deep study work, it has firstly identified a decalogue of ten keywords, then identified as basic macro-themes on which to realize the "Ethical Constitution" in which the term Equity plays a fundamental role together with Health, Responsibility, Relationship, Information, Competence, Consensus, Multi-professional approach, Privacy. Subsequently, the FNO TSRM e PSTRP decided to focus on gender equity.

Soon after, the FNO TSRM e PSTRP, together with EngHea, designed and built pathways to explore the meaning of the terms gender and sex in professional practice involving all 220,000 members. Given the large number of health professionals, the pathways use a hub and spoke organisational model with 'gender equity' referents for each profession who have undergone specific training on the gender dimension and tools for disseminating the approach. It has also set up a computerised survey tool, fully aware that the method requires a parallel communication project to spread awareness of the project and encourage adherence to it. The survey method and data will be presented.

**Italian National Federation of Radiographers and Technical, Rehabilitation and Prevention Health Professions (FNO TSRM e PSTRP), email address: presidente@tsrm-pstrp.org,*

***Engendering Health APS, email address: engheaaps@gmail.com*

*Since 15/2/2018, following the entry into force of Law No. 3 of 11 January 2018, the * Italian National Federation of Radiographers and Technical, Rehabilitation and Prevention Health Professions (FNO TSRM e PSTRP) has been established, representing no less than 19 health professions, with approximately 220,000 members.*

P1.37 POSTERS

Family supportive supervisor behaviors moderate links between work stress and exhaustion in academic staff at an Austrian medical university

Nikola Komlenac[1], Lisa Stockinger[1], Margarethe Hochleitner[1]

[1]Institute of Diversity in Medicine, Medical University of Innsbruck, Innsbruck, Austria

The gender gap in the number of publications of people in the academic careers is well documented. On average women as compared to men publish fewer papers in scientific journals. This gender disparity negatively affects women's careers because publishing in scientific journals is one important indicator of job performance that is given much weight during promotion procedures for academic positions. The current study applied the Job Demands – Resources Model and analyzed whether family supportive supervisor behaviors (FSSB), as a job resource, moderated associations between work stress and feelings of exhaustion and was ultimately linked to academic employees' publication activity. During an online cross-sectional questionnaire study 133 academic employees (65.4% women, 34.6% men; M_{age} = 41.9, SD = 10.1) at an Austrian medical university reported their number of publications, h-index, work stress, feelings of exhaustion, FSSB, and work-family services used. Manifest path models revealed that FSSB moderated the link between experiencing strong work stress and feeling strong exhaustion, especially in employees who had at least one child below the age of 18. Part-time employment was most strongly linked with lower numbers of publications and lower h-indices. The current study supports recommendations to increase the amount of work-family services, FSSB and to change organizational norms in order to be supportive of successful management of family and work obligations.

P1.38 POSTERS

Gender specific medicine awareness in nursing students: a questionnaire - survey

Laura Baffoni[1], Denise Garattoni[2;3], Khardiatou Ndiaye[2]

[1]Centro Formazione Medicina di Genere OMCeO Rimini, Rimini, Italy, [2]Università di Bologna Campus di Rimini, Rimini, Italy, [3]AUSL della Romagna, Rimini, Italy

Gender Specific Medicine is a different and innovative approach to overcome health inequalities and thanks to its interdisciplinary, transversal and multidimensional nature represents the necessary passage for Personalized Medicine.

Three years after the approval of the Plan for the application and dissemination of Gender Medicine (GM), after informed consent we administered an anonymous questionnaire on GM to all 160 students in the last year of Nursing on the Rimini campus before (group A) and after (group B) a seminar on GM to test how well young people know about it and about how sex (S) and gender (G) modify health state, if the teaching in the university courses for health professions provides a G health "culture", and to evaluate how much a single seminar is able to modify knowledges that sometimes turn out to be preconceived. The Bioethics Committee of the University of Bologna approved the study. We used a modified version of the multiple choice questionnaire proposed by Bisconti et Al (Healthcare 2020, 8, 516).

124 students answered to the questionnaire (group A); 84% aged 21-25 years, 86% were females and most (75%) had done their internship in hospital. 73% of group A say they have heard of GM, but only 22% know "what it does". Only 6% correctly answer the question about the definition of GM, and rightly distinguish the concept of S and G. 58% recognized that GM refers to the "bio-psycho-social health model" but missed the correct definition of S and G. In group B 57/110 students (52%) gave the correct definition of GM and the number of those who gave the wrong definition of S and G was reduced from 58 to 25%.

The majority of students in both groups believe that the application of GM improves the patient's prognosis (group A 88% vs group B 95%) and the National Health Service economic sustainability (77% vs 98%). The seminar raises (43% vs 98%) the awareness that it is important to have a different approach in clinical practice according to G, but it is unable to change behavior in applying GM in daily practice (just over 50% both group A and B) thus suggesting a disconnection between "knowledge" and "application" of GM. Finally, almost all of group A and B students believed that knowledge of GM and participation in training courses and conferences were a necessary component of their training and a useful mean of obtaining it.

P1.39 POSTERS

Genere Donna - The communication project on gender medicine and autoimmune diseases, supporting women with rheumatic and dermatologic autoimmune diseases

Laura Faravelli[1], Antonella Celano[2], Valeria Corazza[3], Silvia Tonolo[4]

[1]Media For Health, Communication, Milan, Italy, [2]APMARR - Associazione Nazionale Persone con Malattie Reumatologiche e Rare - APS, Presidency, Lecce, Italy, [3]APIAFCO - Associazione Psoriasici Italiani Amici della Fondazione Corazza, Presidency, Bologna, Italy, [4]ANMAR Italia Onlus - Associazione Nazionale Malati Reumatici Onlus, Presidency, Roma, Italy

Purpose: In autoimmune diseases (AD) Gender makes the difference. Among millions of people affected worldwide, 80% are Women. AD arise more frequently in childbearing age and can affect negatively different sides of life, as job, maternity, quality of life in general. The number of people affected by AD is growing, also are the interest of science and of Institutions in Gender Medicine and the improvements in research, diagnosis and treatment of AD. On the other side, patients affected by rheumatic and dermatologic AD look for correct and reliable information, to clarify doubts and to live their life empowered and informed. Genere Donna aims to meet the patients' unmet needs and spreads updated and clear information, validated by experts, about gender medicine and rheumatic and dermatologic AD, to improve knowledge, promoting patients' empowerment and the importance of a gender approach in Public Health.

Methods: To set up an awareness campaign on Gender Medicine focused on autoimmune diseases: Genere Donna. Launched in July 2021, the website www.generedonna.it and social media are the heart of the project, raising awareness also through adv campaigns (SEM and social media) and ad-hoc content marketing. The close teamwork of the main Italian patients' associations ANMAR (Associazione Nazionale Malati Reumatici Onlus), APMARR (Associazione Nazionale Persone con Malattie Reumatologiche e Rare) and APIAFCO (Associazione Psoriasici Italiani Amici della Fondazione Corazza) and some authoritative experts in AD (5 physicians and a welfare expert), is the key for success. Supported by a communication agency, Genere Donna counts on an educational grant from UCB Pharma Italy, main sponsor.

Results: (9 months): 70K website users (72% female) 370K page views, 1.7Mln reach and 180K interactions on social media, and a social community of around 19K people.

Conclusions: The good results and many positive comments come from the community push the project ahead in the future, to be more and more near to the patients affected by rheumatic and dermatologic AD.

P1.40 POSTERS

How to integrate sex and gender medicine into medical and allied health profession undergraduate, graduate, and post-graduate education: insights from a rapid systematic literature review and a thematic meta-synthesis

Rola Farah[1], Nicola Bragazzi[2]

[1]Gender Medicine, Azrieli Faculty of Medicine, Bar-Ilan University, Safed, Israel, [2]Department of Mathematics and Statistics, Laboratory for Industrial and Applied Mathematics (LIAM), Toronto, Canada

Sex and gender are concepts that are often misunderstood and misused, being utilized in a biased, preconceived, interchangeable way. Sex and gender medicine is generally overlooked, despite the profound impact of sex and gender on health outcomes. The aims of the present rapid systematic literature review were (i) to assess the extent to which sex- and gender-sensitive topics are covered in medical courses; (ii) to assess the need for and willingness toward integrating/incorporating sex and gender medicine into health-related education; (iii) to identify barriers and facilitators of the process of implementation of sex and gender medicine in medical teaching, mentoring, and training; and (iv) to evaluate the effectiveness of interventional projects targeting curriculum building and improvement for future gender-sensitive physicians. Seven themes were identified by means of a thematic analysis, namely, (i) how much sex- and gender-based medicine is covered by medical courses and integrated into current medical curricula, (ii) the knowledge of sex and gender medicine among medical and allied health profession students, (iii) the need for and willingness toward acquiring sex- and gender-sensitive skills, (iv) how to integrate sex- and gender-based medicine into medical curricula in terms of barriers and facilitators, (v) existing platforms and tools to share knowledge related to sex and gender medicine, (vi) sex- and gender-based medicine aspects in the post-medical education, and (vii) the impact of sex- and gender-sensitive topics integrated into medical curricula. Based on the identified gaps in knowledge, further high-quality, randomized trials with larger samples are urgently warranted to fill these gaps in the field of implementation of gender medicine in educating and training future gender-sensitive physicians.

P1.41 POSTERS

Gender differences in sinonasal cancer in Italy: data from the Italian National Sinonasal Cancer Registry

Alessandra Binazzi[1], Davide Di Marzio[1], Carolina Mensi[2], Lucia Miligi[3], Jana Zajacovà[4], Paolo Galli[5], Roberto Calisti[6], Elisa Romeo[7], Stefano Murano[8], Silvia Eccher[9], Vera Comiati[10], Gabriella Madeo[11], Federico Tallarigo[12], Alessandro Marinaccio[1] and ReNaTuNS Working Group*

[1]Department of Occupational and Environmental Medicine, Epidemiology, Hygiene, National Institute for Insurance Against Accidents at Work (INAIL), Rome, Italy, [2]Sinonasal Cancer Registry of Lombardy, Epidemiology Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy, [3]Sinonasal Cancer Registry of Tuscany, Occupational and Environmental Epidemiology Unit, Institute for Cancer Research, Prevention and Clinical Network (ISPRO), Florence, Italy, [4]Sinonasal Cancer Registry of Piedmont, Occupational Health and Safety Department, CN1 Local Health Authority, Saluzzo, Italy, [5]Sinonasal Cancer Registry of Emilia Romagna, Occupational Safety and Prevention Unit, Public Health Department, Bologna Local Health Authority, Bologna, Italy, [6]Sinonasal Cancer Registry of Marche, Department of Prevention, Unit of Workplace Prevention and Safety and of Occupational Epidemiology (SPreSAL Epi Occ), Regional Health Authority Marche, Civitanova Marche, Italy, [7]Sinonasal Cancer Registry of Lazio, Department of Epidemiology, Servizio Sanitario Regionale del Lazio, Rome, Italy, [8]Sinonasal Cancer Registry of Autonomous Province of Bolzano, Alto Adige Health Authority, Occupational Medicine Unit, Bolzano, Italy, [9]Sinonasal Cancer Registry of Autonomous Province of Trento, Hygiene and Occupational Medicine, Provincial Unit of Health, Trento, Italy, [10]Azienda Zero, Epidemiological Department, Veneto Region, Padua, Italy, [11]Sinonasal Cancer Registry of Umbria, University of Perugia, Perugia, Italy, [12]Sinonasal Cancer Registry of Calabria, Public Health Unit, Crotone, Italy, [13]Epidemiology, Local Health Unit ASL TO3, Piedmont Region, Grugliasco, Italy, [14]Department of Translational Research and of New Technologies in Medicine and Surgery, University of Pisa, Italy

Background: Sinonasal cancers (SNCs) are rare tumors with a high occupational attributable fraction due to exposures to specific carcinogens. We applied gender-based approaches to descriptive analyses and incidence of SNC using the Italian National Sinonasal Cancer Registry (ReNaTuNS: Registro Nazionale Tumori Naso-Sinusali). The ReNaTuNS is coordinated by the Italian Workers' Compensation Authority (INAIL: Istituto Nazionale per l'Assicurazione contro gli Infortuni sul Lavoro) and is based on the Regional Operating Centers (CORs) that collect clinical characteristics of SNC cases and identify those of occupational origin.

Methods: The study population consisted of 2,332 SNC patients registered in the ReNaTuNS, diagnosed between

2000 and 2018. We investigated gender differences with regard to age at diagnosis, histologic type, SNC subsite and age-adjusted incidence rates.

Results: SNC was diagnosed mostly in men (72.8%) than women (27.2%). Median age at diagnosis was 68 years in men and 69 in women. The most frequent morphology in men was adenocarcinoma (48.4%), while in women squamous cell carcinoma (46.4%). Tumors of the nasal cavities were prevalent in both genders (men: 48.1%; women: 48.4%), followed by the ethmoid sinus in men (24.1%) and maxillary sinus in women (25.6%). SNC incidence rates were 0.73 (per 100,000) in males and 0.21 in females. Age-specific rates increased after the age of 45 and peaked over 75 years: gender differences were small until the 35-44 age-class and then increased over time with the largest gap among those > 75 years. Occupational exposures were the most frequent (70.3% in men and 37.4% in women). Smaller percentages regarded domestic (0.5% men, 3.4% women) and extra-occupational (3.3% men, 1.4% women) exposures.

Conclusions: Epidemiological surveillance of SNC cases is fundamental for prevention in workplaces, mainly in Italy where the number of workers exposed to risk factors, not even aware, is high. Given the rarity of disease, especially in women, a population registry such as the ReNaTuNS can offer a way to examine gender differences and prognostic factors. For the purpose to develop this surveillance system, through the strengthening of the regional network of the ReNaTuNS, a collaboration agreement was recently signed between INAIL and the COR of Lombardy.

*ReNaTuNS Working Group: A. Binazzi[1], M. Bonafede[1], D. Di Marzio[1],A. Marinaccio[1], S. Massari[1], D. Consonni[2], B. Dallari[2], C. Mensi[2], A.C. Pesatori[2], L. Riboldi[2], S. Rugarli[2], S. Stella[2], C. Zellino[2], V. Cacciarini[3], L. Giovannetti[3], A. Martini[3], L. Miligi[3], P. Piccini[3], S. Piro[3], D. Sorasio[4], J. Zajacovà[4], A. Camagni[5], P. Galli[5], M. Marzadori[5], R. Calisti[6], S. Massacesi[6], L. Ancona[7], A. Balestri[7], I. Cozzi[7], E. Romeo[7], G. Mazzoleni[8], S. Murano[8], S. Eccher[9], A. Tonello[9], V. Casotto[10], V. Comiati[10], M. Zorzi[10], G. Madeo[11], F. Tallarigo[12], A. d'Errico[13], A. Franchi[14]

P1.42 POSTERS

Gender differences in the SARS-Cov-2 epidemic in the Veneto Region, Italy

Laura Cestari[1], Eliana Ferroni[1], Nicola Gennaro[1], Michele Pellizzari[1], Silvia Pierobon[1], Elena Schievano[1], Ugo Fedeli[1], Francesco Avossa[1], Manuel Zorzi[1]

[1]Regional Epidemiological Service, Azienda Zero of the Veneto Region, Padua, Italy

Introduction: The Veneto Region, Italy, has been affected by three waves of SARS-CoV-2 (Covid-19) infection, which showed a different impact between genders, particularly in terms of the severity of the disease.

Aim: To analyse any gender differences in the epidemiology of SARS-CoV-2 infection in the Veneto Region.

Methods: Data used for the analyses derive from the bio-surveillance system. Weekly incidence, hospitalization and mortality rates were calculated, linked to SARS-CoV2 infection, as well as percentage variations between the absolute number of all-cause deaths of residents in Veneto recorded from January 2020 to October 2021 and the data for the three-year period 2017-2019.

Results: The weekly rates of new infections per 100,000 inhabitants, calculated as the average for the period, do not show substantial gender differences, except for the age groups 65-74 and 75-84 years, where the rates are higher in men (94, 3 vs 78.9 and 97.6 vs 85.8), and of age 85+, in which the weekly incidence rate for men is lower (130.7 vs 157.9). With regard to Covid-19 hospitalizations, from the beginning of the pandemic to 31/10/2021 there were 35,345 hospitalizations (58% in men). During the epidemic waves, the peak of new daily entries in men was significantly higher than in women (115 vs 65 in the 1st wave, 130 vs 90 in the 2nd wave, 85 vs 60 in the 3rd wave). As for admissions to intensive care, from the beginning of the pandemic to 31/10/2021 there were 5,582 events, of which 73% concerned men; the gender gap has eased since May 2021. Mortality from Covid-19 is higher in men across all age groups. From the analysis of mortality from all causes, important gender differences emerge, especially in correspondence with epidemic waves and in the adult/elderly age groups. For men aged 50-64 in the first two epidemic waves, the maximum percentage change in deaths is more than double that of women (+50% vs +20%); this difference is also observed in the 65-74 age group, in particular in the 2nd wave (+70% vs +40%). In the 75-84 age group, gender differences were found in particular in the 1st wave (+35% vs +15%).

Conclusion: The analyses showed no substantial gender differences in terms of the incidence of SARS-CoV2 virus infection, while the number of hospitalizations was much higher in men than in women.

P1.43 POSTERS

How to ensure inclusivity in large-scale data studies? Lessons learned regarding sex, gender and sexual orientation in large-scale general population cohort studies

Aranka Ballering[1], Sarah Burke[1], Els Maeckelberghe[2], Judith Rosmalen[1]

1Interdisciplinary Centre for Psychopathology and Emotion Regulation, 2Wenkebach Institute for Training and Education, University Medical Center, Groningen, The Netherlands

Conventionally, sex, gender and sexual orientation have gained little to no attention in large-scale general population cohort studies, are mistakenly equated, or operationalized in a non-informative manner. Furthermore, it is frequently thought that sex, gender and sexual orientation are only relevant to the health of

those that identify as part of a gender or sexual minority population. The resulting lack of information on sex, gender and sexual orientation in epidemiological studies is problematic, as literature shows that these concepts are important health-related factors. Omission of these concepts from general population cohort studies pushes research into gender or sexual minority populations towards purposive sampling, potentially introducing selection bias. It also reinforces the unintentional notion of irrelevance of these concepts to health research. This study discusses the encountered pitfalls and lessons learned in assessing sex, gender and sexual orientation in large-scale general population cohort studies, exemplified by the Dutch Lifelines Cohort Study (N = 167,728). First, with regards to sex we discuss how sex is often inconsistently operationalized in large-scale general population cohort studies and the consequences hereof. Additionally, we discuss how sex-related quality control measures of genotyping protocols in large-scale general population cohort studies may disadvantage participants with an intersex variation. Second, regarding gender we aim to describe how and why this concept is oftentimes omitted in general population cohort studies. In addition, we discuss newly-developed methods and their concomitant disadvantages to define gender measures by means of previously collected data. Third, regarding sexual orientation we discuss how there is currently no generalizable rule on how questions on sexual orientation should be phrased and how this affects the quality of data obtained in large scale population cohort studies. Ultimately, we propose hands-on strategies on how to operationalize sex, gender and sexual orientation in an inclusive manner that is useful for large-scale general population cohort studies.

P1.44 POSTERS

Post traumatic stress disorder prevalence in women survivors of gender violence: an open question

Giuseppina Muratore[1], Roberta Barletta[1], Luisa Frova[2], Loredana Falzano[3], Giada Minelli[4], Roberta Crialesi[2], Alessandra Burgio[2], Milena Pappagallo[2], Anna Colucci[5], Andrea Piccinini[6], Giussy Barbara[7], Simona Gaudi[8]

[1]Division for Population Register, Demographic and Living Conditions Statistics, [2]Division for Integrated System for Health, Social Assistance and Welfare, [3]Center for Global Health, [4]Statistical Service, [5]Infectious Diseases, Italian National Institute of Health, [8]Enviroment and Health, Rome, Italy, [6]Department of Biomedical Sciences for Health, Forensic Genetics Laboratory, University of Milan, Milan, Italy, [7]Gynecological Unit and SVSeD (Service for Sexual and Domestic Violence), Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy

Violence against women (VAW) is a significant health and social problem whose consequences may determine higher physical health morbidity and mortality. VAW crosses all social classes and ethnicities and is among the most significant factors negatively affecting women's health worldwide.

In 2014, the Italian National Institute of Statistics reports that about 31.5% of women (16-70 years old) have experienced at least one form of physical or sexual violence. Nowadays, the majority of epidemiological studies on gender-based violence are often focused on short-term effects while the long-term effects are neglected or marginally included. Victims of severe gender-based violence present physical and psychological health problems, with particular high prevalence of Post Traumatic Stress Disorder (PTSD). PTSD symptoms include severe anxiety, flashbacks, nightmares, symptoms of increased arousal such as irritability or anger, or symptoms of persistent avoidance of trauma-related situations and pose a high burden for individuals and societies. Women have double prevalence rate of PTSD than men, although there is no agreed approach to measuring this phenomenon. To date, the PTSD molecular architecture and gender-associated biomarkers have not been deciphered yet. In the lack of accurate sources, health data that could provide insight into the health of women who have experienced violence are those of emergency room (ER) units and hospital admissions. The analysis of the diagnoses reported in the repeated accesses of the abused women provides indirect indications about the health's consequences of the previous suffered violence. Data from ER, hospital admissions and the antiviolence crisis centers will be unified in order to assess the entire individual clinical history of women survivors. A public health approach attempts to identify the early onset of PTSD in high risk populations for targeting the precision medicine intervention and for advancing in PTSD prevention.

P1.45 POSTERS

Gender differences in the screening of transmissible diseases with transfusion: activities of the biological qualification center of the "Cardarelli" AORN in Naples

Maria Gabriella De Silvio[1], Maria Criscuoli[2], Maria Rosaria De Pascale[2], Gesualda La Porta[3], Vittoria Barchiesi[4], Maria Ludovica Genna[4], Giovannina Longo[5]

[1]ASL SA, Distretto 60, Nocera Inferiore (SA), Italy, [2]SIMT, [3]Direzione Sanitaria, [4]CQB-SIMT, [4]CQB-SIMT, AORN Cardarelli, Napoli, Italy

Introduction: The legislation in force in Italy regulated by Legislative Decree 219 of 21.10.2005 provides, for transfusion activities, uniformity of the requirements of Quality, Safety of products and transfusion services, also with the execution of tests for each donation. AORN Cardarelli of Naples in the year 2021 subjected to investigation 19895 units of donated blood to search viral

markers (HBsAg, Anti HCV, Anti-HIV, Anti-Treponema) .The purpose of the work is to identify the frequency of positivity of the individual markers of viral infection by distributing them by gender, age in the perspective of gender medicine.

Materials and Methods: A retrospective investigation was carried out on the data relating to Donors belonging to the SIMT of AORN Cardarelli in the year 2021. 19895 peripheral blood samples were examined for the search for viral markers HBsAg, anti-HIV, anti-HCV, anti -Treponema, of which 12113 belong to the male sex and 7782 belong to the female sex with the CLIA immunometric method. At the same time, the search for the viral genome HCV-RNA, HIV-RNA, HBV-DNA was carried out with the NAT method.

Results and Conclusions: From the data obtained it emerged that the highest number of donations is represented by the male sex (12113) against the number of female donations (7782). Among the male donors the majority is represented by individuals belonging to the age group 46 and 55 years. Also in any age group the male gender is numerically more represented, confirming the similar data presented in the years 2017-2018. For all the infectious markers examined, the ratio between positive males and females is unbalanced towards the former, with greater evidence for HIV and HBV, less in the case of positivity for HCV. The difference in the donation intervals between men (4 times a year) and women (2 times a year) provides greater control of communicable diseases and is very likely the reason for the higher incidence in the male gender. Furthermore, periodic male donors are in greater number in all age groups.

P1.46 POSTERS

General practitioners and gender medicine: a survey from Campania (Italy)

Anna Castellano[1;1], Silvana Capasso[1], Vincenza Alfano[1], Francesco Marino[2]

[1]AIDM Napoli P. Marconi, Naples, Italy, [2]ONLUS Concordia magna res crescunt, Pompei, Italy

In this intervention we will present a 2019 survey by the Naples section "P. Marconi" of the Italian Women Doctors Association (AIDM) about General Practitioners (MMG) and General Practitioners in Formation (MMGF) to assess their knowledge on gender medicine, a fundamental skill for prevention, consciousness and cure of diseases, given the fact that MMGs are the first contact for patients of the Italian public healthcare system.

This is a repurposing of a research made in the Piedmont region by the Institute of Psychology at the Turin University, together with the Turin section of AIDM and SIMG Piedmont, with a questionnaire comprised of psychological and clinical questions about gender medicine. The study made in Campania was preceded by an agreement between the Turin Institute of Psychology and the AIDM section of Naples.

The sample of our survey was made up of 324 doctors, with 40% being General Practitioners (MMG) and 60% General Practitioners in Formation (MMGF).

The 14 questions were about gender differences, validated by medical literature, in some clinical pathologies and pharmacology, like: chronic obstructive pulmonary disease, pulmonary tumors, male and female depression, diabetes, cardiovascular disases, male osteoporosis, drugs experimentations.

The participants showed a good consciousness regarding some of these pathologies, like COPD, lung tumor and depression, while there were some critical issues on cardiovascular diseases, diabetes and male osteoporosis. The MMG had better results than MMGF, and we recorded no differences between men and women.

Given the results, there's a clear need for the developing of a formation in Gender Medicine for General Practitioners, with specific attention to the aforementioned pathologies, towards which our doctors have shown some critical issues.

P1.47 POSTERS

Pesticide exposure in girls and idiopathic premature thelarche

Cinzia La Rocca[1], Lucia Coppola[1;2], Sabrina Tait[1], Monia Perugini[3], Lorella Ciferri[4], Giovanni Angelozzi[3], Enrica Fabbrizi[5]

[1]Center for Gender-specific Medicine, Italian National Institute of Health, Rome, Italy, [2]Department of Experimental Medicine, Sapienza University, Rome, Italy, [3]Faculty of Bioscience and Technology for Food, Agriculture and Environment, University of Teramo, Italy, [4]ASUR MARCHE Area Vasta 4, Italy, [5]Pediatric Departmental Simple Operative Unit, Civitanova Marche Hospital, Italy

Exposure to pesticides as endocrine disrupting chemicals may have a role in the precocious sexual maturation, occurring more frequently in girls than in boys. In girls, the breast development before the age of 8 years is defined as premature thelarche. In this frame, the project "Integrated approach to evaluate children agricultural pesticide exposure and health outcome" (RF-2016-02364628 funded by the Italian Ministry of Health) aims to investigate the possible association between pesticide exposure and idiopathic premature thelarche (IPT) and to explore molecular alterations implied in early human breast response to pesticide exposure by in vitro model. Results on toxicological effects in human breast cell lines showed endocrine disrupting activity of chlorpyrifos, glyphosate and imidacloprid pesticides widely used in agriculture (doi.org/10.3390/ijerph19084453).

To evaluate pesticide exposure and IPT by internal pesticide levels determination and dietary intake assessment, 60 girls affected by IPT (cases) matched

with 60 healthy girls (controls) (2-7 years old) were enrolled in areas of intensive agriculture practice in Central Italy. Parents were asked to sign the informed consent, to collect a urine sample and to fill in a Food Frequency Questionnaire (FFQ). Multiple pesticide residues were determined in urine and food samples by LC or GC-mass spectrometry. Dietary exposure based on pesticide levels in food and FFQ data will be assessed by DietEx EFSA tool.

Data from FFQ were used for the definition of sampling plan of locally produced foods. Vegetables and fruits were sampled in 17 local farms and 25 private gardens (N = 24 and N = 13 samples, respectively). Sampling and analysis of meat, eggs, oil, honey are still ongoing.

Preliminary results showed pesticide residues levels in urine (55 cases, 45 controls) and in fruit and vegetable samples from private gardens below the limit of quantification. Differently, triazole and other fungicides, carbamates, and insecticides (neonicotinoids, benzamide derivatives) were detected in fruits, in particular strawberry and grape, and vegetables from farms (N = 6 samples consumed by cases and N = 7 by controls).

Overall, final data integration will contribute for risk evaluation of potential effects of pesticide exposure on premature thelarche.

P1.48 POSTERS

Determinants of exposure to plasticisers in Italian children and adolescents

Cinzia La Rocca[1], Sabrina Tait[1], Emma Buzzigoli[2], Fabrizia Carli[2], Raffaele Conte[2], Lucia Coppola[1;3], annalisa deodati[4;5], Veronica Della Latta[2], Graziella Distante[2], Enrica Fabbrizi[6], Patrizia Landi[2], Gabriele Lori[1;7], Francesca Mancini[8], Francesca Maranghi[1], Anna Paola Pala[2], Annalisa Silenzi[1], Roberta Tassinari[1], Giacomo Toffol[9], Stefano Cianfarani[4;5], Amalia Gastaldelli[2], Roberta Urciuoli[10], Luca Busani[1]

[1]Italian National Institute of Health, Center for Gender-Specific Medicine, Rome, Italy, [2]Institute of Clinical Physiology, National Research Council, Pisa, Italy, [3]Department of Experimental Medicine, Sapienza University, Rome, Italy, [4]Diabetology & Growth Disorders Unit, "Bambino Gesù" Children's Hospital, Rome, Italy, [5]Department of Systems Medicine, University of Rome 'Tor Vergata', Rome, Italy, [6]Pediatric Departmental Simple Operative Unit, Civitanova Marche Hospital ASUR Marche Area Vasta 3, Macerata, Italy, [7]Science Department, Università degli Studi di Roma Tre, Rome, Italy, [8]Centre for Research in Epidemiology and Population Health (CESP), Inserm U1018, Villejuif Cedex, France, [9]Associazione Culturale Pediatri, Narbolia (OR), Italy, [10]Italian National Institute of Health, Infectious Diseases, Rome, Italy

The biomonitoring study (HBM) in LIFE PERSUADED project (LIFE13 ENV/IT/000482) showed the Italian children and adolescents of both sexes are exposed to Bisphenol A (BPA) and Bis(2-ethylhexyl)phthalate (DEHP), as sum of its metabolites (doi.org/10.3390/ijerph182211846; doi.org/10.1016/j.envres.2020.109428). Both are plasticizers recognized as endocrine disrupting chemicals able to affect endocrine, reproductive, neurodevelopmental, immune and metabolic systems.

The identification of determinants of exposure can contribute to limit the exposure and protect population health but also to regulate use of chemicals in consumer products. For this purpose, a structured questionnaire and a food diary were designed within the LIFE PERSUADED project to evaluate the association between demographic and lifestyle variables potentially related to DEHP/BPA exposure and internal levels in children.

In the HBM study 900 children (4-14 years old) were enrolled from urban and rural areas in the North, Centre and South of Italy), grouped by sex and three age classes (4-6, 7-10 and 11-14 years). Each subject was asked to fill in the questionnaire and the food diary, specifically dedicated to children lifestyle, dietary habits, sport activity and food consuming. Both questionnaire and food diary were in paper and in electronic format accessible online. A relational database (MySQL) to manage all the data as well as a quality control of the data entry on both questionnaires and diaries was developed.

Preliminary results showed that higher levels of BPA and phthalates are associated with the use of single-use plastics (plates, glasses, etc.) whereas the use of plastic containers in microwave and playing more than 4 hours per day with plastic toys, including electronic devices, are associated to higher phthalates exposure, especially in children 4-6 years old.

P1.49 POSTERS

Gender related drivers of environmental exposure to infectious disease

Claudia Cataldo[1], Maria Bellenghi[1], Massimo D'Archivio[1], Scilla Pizzarelli[2], Annapaola Rizzoli[3], Francesca Dagostin[3], Roberta Masella[1], Luca Busani[1]

[1]Centre for Gender-Specific Medicine - Gender Prevention and Health Unit, [2]Knowledge Unit - Documentation library, Istituto Superiore di Sanità, Rome, Italy, [3]Innovation and Research Center, Edmund Mach Foundation, San Michele dell'Adige, Italy

Sex and gender differences on vulnerability, exposure and response to infections should be considered to estimate the risk and to target health interventions. The dynamic of infectious diseases is influenced, in fact, by biological, social, economic and environmental conditions. In the framework of the MOnitoring Outbreak events for Disease surveillance in a data science context (MOOD) project European, three prototype infectious diseases Chikungunya, Leptospirosis and Tularemia were analysed to identify exposure scenarios where

gender-related drivers interact with environmental drivers.

A comprehensive literature search for the three diseases was conducted to select studies with quantitative data on the diseases in relation to gender, behaviors, social and environmental covariates. The selection was restricted to Europe and the last 20 years.

21 papers were analysed (6 for Chikungunya; 8 for Leptospirosis and 7 for Tularemia) to identify the following exposure scenarios:

Chikungunya: elderly males staying outdoor during the time of prevalent mosquito vector activity and near to mosquito breeding and resting sites. Another individual risk factor was the poor use of insect repellents.

Leptospirosis: adult males with professional contact with animals or engaged in recreational activities in contaminated freshwater, in contact with infected animals, animal products, contaminated soil or water. Schoolchildren during summer doing recreational activities in contaminated water, especially after heavy rains. Another individual risk factor was having uncovered wounds/abrasions.

Tularemia: adult males involved in outdoor activities with contact with infected rodent species (hares, in particular) and/or infected vectors (mosquitoes and ticks). Another individual risk factor was consumption or use of contaminated water.

These scenarios highlight that gender-related drivers, by interacting with infectious agents in specific environments, can increase the risk of infection.

P1.50 POSTERS

Anti-inflammatory effects of Vitamin D in T cell immunity: sex makes a difference?

Daniela Peruzzu[1], Marina Pierdominici[1], Katia Fecchi[1], Maria Cristina Gagliardi[1], Elena Ortona[1], Maria Teresa Pagano[1]

[1]Centro di Riferimento per la Medicina di Genere, Istituto Superiore di Sanità, Rome, Italy

Hypovitaminosis D is implicated in various inflammatory, infectious and autoimmune diseases such as rheumatoid arthritis, systemic lupus erythematosus, and multiple sclerosis.

The active metabolite of vitamin D, 1,25(OH)2 vitamin D(3) (vitamin D3), has been shown to be involved in the regulation of innate and adaptive immune responses with sex differences in the immunomodulatory and anti-inflammatory effects.

Interestingly, several evidence suggested a cross-talk between vitamin D3 and sex hormones in the regulation of the immune system. Vitamin D3 acts in an estrogen-dependent manner in controlling T regulatory (Treg) cell differentiation and exerts tissue-specific effects on peripheral estrogen metabolism. In turn, estrogen seems to increase the expression of the nuclear vitamin D receptor (VDR) gene in CD4+ T cells and to decrease the expression of CYP24A1 that inactivates vitamin D3.

The aim of this study was to investigate whether vitamin D3 could act differently in male and in female healthy donors. To this purpose, we analyzed the expression levels of VDR and the effects of vitamin D3 on cytokines production by T lymphocytes from healthy donors of both sexes.

We observed that resting T cells have low expression of VDR. Activated T lymphocytes showed a significant increase of VDR expression levels and, after treatment with vitamin D3, the increase is even more significant. No significant difference was observed between T lymphocytes from male and female healthy donors. We observed that vitamin D3 significantly reduces pro-inflammatory cytokine production (i.e IL-17, INF-γ, TNF-α) by T lymphocytes from both male and female healthy donors. Noteworthy, we demonstrate that vitamin D3 induces a significant increase of the anti-inflammatory cytokine IL-10 production only in T cells from female healthy donors.

In conclusion, our study supports the hypothesis of a cross-talk between vitamin D and sex hormones and provides new insights regarding the anti-inflammatory activities of vitamin D in T cell immunity.

P1.51 POSTERS

Multidisciplinary model for the integrated hospital-territory management of the rheumatic patient from a gender perspective (DTAP)

Maria Gabriella De Silvio[1], Paola Sabatini[2], Antonietta Sica[3], Domenica Marianna Lomazzo[4], Caterina Palumbo[5], Patrizia Amato[1]

[1]Distretto Sanitario 60 - UOMI, [2]Microbiologia e Virologia, [5]Direzione Amministrativa, ASL Salerno, Nocera Inferiore, Italy, [3]PO Maria SS Addolorata, ASL Salerno,UOSD MCAU, Eboli, Italy, [4]Regione Campania, Pari Opportunità, Naples, Italy

Fertility data in male patients with rare diseases are few. Data on the effects of antirheumatic drugs on fertility are scarce for both sexes. It appears that an evaluation of the mother in the preconception phase is essential to allow an optimal planning of pregnancy (in the course of remission or stable disease in the previous 6 months), associated with a characterization of the maternal autoantibody profile, an evaluation of comorbidities. Introduction. In Italy, on13 June 2019, the Ministry of Health formally approved the Plan for the application and dissemination of gender medicine on the national territory(Article 3,paragraph1,Law 3/2018) that sets out the strategic objectives in four areas of intervention envisaged by the law: clinical paths of prevention, diagnosis and treatment, research and innovation, training and professional updating, communication and information. In compliance with the law on 26/10/2021 a technical table was set up in the ASL Salerno. For the activation of gender-specific prevention, diagnosis and treatment pathways and to promote a new culture, the establishment of a DTAP is necessary. The DTAP

promoted by our technical group aims to evaluate how rheumatic diseases differ between men and women, family planning for patients with rheumatic diseases,fetal monitoring and the timing and necessity for therapeutic termination of pregnancy in patients with gestational reactivation of autoimmune disease which may expose to the high risk of maternal mortality. Objectives. To assist women to minimize the impact of rare diseases on fertility and to investigate the effects of drugs used in rheumatology on fertility and teratogenicity in women and men with rheumatic and musculoskeletal disease. Purpose and area of application. According to the hub and spoke model, the territory must be integrated with the hospital. The guidelines used as a reference are the American College of Rheumatology and the European League Against Rheumatism.

P1.52 POSTERS

Sex-related effect of magnesemia on infectious diseases mortality: a retrospective case-control study

Isabella Zaffina[1;2], Valentina Forte[1;2], Antonietta Accoti[1], Mattia Massimino[1], Eugenio D'amico[2], Francesco Andreozzi[1]

[1]Internal Medicine, Università Magna Graecia di Catanzaro, Catanzaro, Italy, [2]UOS Medicina Generale, PO San Francesco Paola Spoke Cetraro Paola, Cosenza, Italy

Introduction: Infectious diseases account for up to 30% of all hospitalizations in Internal Medicine wards. Recently, due to the significant increase in morbidity and mortality from infectious disease, scientific literature considers a priority to identify prognostic factors focusing on gender differences. Indeed, several clinical studies suggest that females differ from males in both immune system activity and mortality rates.

Aim of the study: The aim of the study is to examine the sex-related role of circulating magnesium as a prognostic factor for in-hospital mortality of patients hospitalized for infectious diseases.

Material and Methods: All patients were recruited at internal medicine ward of Spoke Cetraro Paola (CS). A retrospective case-control study was conducted. Demographic, clinical and laboratory data were collected at ward admission. Patients who died during hospitalization were recorded as cases and those who were discharged were assigned to the control group.

Results: A total of 99 patients (M 51, F 48) with mean age 77.42 ± 12.45 years were enrolled. The mean magnesium value was 1.86 ± 0.36 mg/dl in controls vs. 2.19 ± 0.4 mg/dl in cases (p = 0.001). Patients were divided according to magnesium value into lower-magnesemia and higher-magnesemia groups. Then, the difference in mortality between the two groups was evaluated, showing that there was an increase in-hospital mortality in the higher-magnesemia group [OR 3.33 (C.I. 1.3 - 8.8)]. Multivariate logistic regression analysis for in-hospital mortality showed that the mortality risk increased with magnesium concentration [OR 5.39 (C.I. 1.17 - 24.79, p= 0.031)] adjusted for the following potential confounding factors: age, blood urea nitrogen, phosphataemia, C-reactive protein, sex and pre-existing diseases. Finally, the analysis of sex-related mortality in the group with higher-magnesemia documented an increased in-hospital mortality in the female population [OR 4.5 (C.I. 1.03 - 19.63)] vs male one [OR 2.66 (C.I.0.71 -10.02)].

Conclusions: Our study showed that a normal-high magnesium value at ward admission is associated with a significant increase in-hospital mortality in elderly patients hospitalized for infectious diseases. Moreover, a gender related sub-analysis showed a higher risk of mortality in women rather than in men.

P1.53 POSTERS

COVID-19 vaccine-induced sex differences in monocytic gene expression

Johannes Knapp[1], Aditi Bhargava[2]

[1]Aseesa LLC, Hillsborough, USA, [2]University of California San Francisco, San Francico, USA

Men reportedly suffer from more severe and adverse outcomes after COVID-19 illness, including death. Few studies have addressed sex-specific risk factors or molecular mechanisms behind COVID-19. Reportedly, the adverse event profile of COVID-19 vaccines differs between sexes. We analyzed public datasets from gene expression omnibus (GEO) to investigate sex differences following vaccination. We found that the first vaccine dose produced an increase of nonclassical CD16+ monocytes in women but not men. We identified a network of genes encoding transcription factors and enhancers that were significantly (p>0.05) upregulated in men after both doses of vaccines, whereas were downregulated in women after dose 1; curiously, the gene network flipped expression to be upregulated after dose 2 in women. The network included genes such as BHLHE40, DDIT3 and FOSL2 involved in mediating immunity. The differential expression of these genes between the sexes following vaccination was greatest in CD16+ monocytes, followed by CD14+ monocytes and type 2 classical dendritic cells. We found that the abundance of BHLHE40, which is female-biased in both mice and humans (expressed differentially before gonad formation and expression of sex hormones) was 2x greater in women at baseline, and transcripts could be detected in roughly 50% of classical monocytes in women compared to 33% in men. We highlight the role of BHLHE40 in macrophages, DDIT3 in coronavirus infection, and FOSL2 in systemic inflammation. Potential mechanisms for sex differences following COVID-19 vaccination will be discussed.

P1.54 POSTERS

The influence of sex, age and macroarea of residence on the eating habits of Italian children and adolescents from Life Persuaded project

Alice Catena[1], Annalisa Silenzi[2], Luca Busani[2], Roberta Masella[2], Sabrina Tait[2], Rosaria Varì[2], Fabrizia Carli[3], Amalia Gastaldelli[3], Stefano Cianfarani[4;5], Beatrice Scazzocchio[2], Cinzia La Rocca[2]

[1]Postgraduate School of Hygiene and Preventive Medicine, University of Brescia, Brescia, Italy, [2]Istituto Superiore di Sanità, Centre of Gender Medicine, Rome, Italy, [3]National Research Council, Pisa, Italy, [4]Tor Vergata University, Roma, Italy, [5]"Bambin Gesù" Children's Hospital, Roma, Italy

Overweight and obesity are associated with non-communicable diseases and leading causes of mortality worldwide. Metabolic dysfunctions are linked to several risk factors, in particular the dietary habits acquired early in childhood and possibly influenced by sex and/or gender even at young ages.

The aim of the study was to evaluate differences between boys (M) and girls (F) aged 4-14 years in fruit, vegetable, sugary drink and junk food consumption. Data were collected by two-day food diaries (N = 899) filled in by the enrolled children within the human biomonitoring study on phthalates and bisphenol A exposure (LIFE PERSUADED project, LIFE13 ENV/IT/000482).

Children (M/F = 1:1) were grouped by three age classes (4-6, 7-10, and 11-14 y) and three macroareas of residence (North, Center, and South of Italy). Food diaries were analyzed to assess the daily fruit, vegetable, sugary drink and junk food consumption in comparison to Italian dietary guidelines. Data analysis was performed with multiple logistic regression, calculating measures of association, by Stata® vs 13.1. From the bivariate analysis age, sex, and macroarea for the logistic regression model were retained.

Only 14.7% of the children had adequate fruit consumption and 50.7% had adequate vegetable consumption. More than 85% exceeded the threshold value (10° percentile) for the junk food consumption and 39.2% consumed more than one sugary drink (> 200 ml) a week. The 11-14 y group had an increased risk of having inadequate fruit (Odd Ratio = 2.99; 95% CI: 1.82-4.90) and vegetable consumption (OR = 1.83; 95% CI: 1.33-2.54). The 7-10 y group had a higher risk of consuming inadequately fruit (OR = 1.62; 95% CI: 1.05-2.47) and vegetables (OR = 1.49; 95% CI: 1.08-2.06). Children from the North have a higher risk of inappropriate consumption of sugary drinks compared to those in the South and the Centre of Italy (OR = 1.93; 95% CI: 1.39-2.69). An increased risk of excessive junk food consumption was measured in the 7-10 y vs 4-6 y (OR = 1.62; 95% CI: 1.01-2.60) and in the children from South vs North of Italy (OR = 1.65; 95% CI: 1.05-2.60).

The study demonstrated an inadequate consumption of fruit, vegetables, sugary drinks and junk food in relation to classes of age and geographic macroareas, maybe due also to gender influence, but it did not reveal any differences related to sex.

P1.55 POSTERS

Caloric restriction, physical and creative activities against breast cancer: our pilot study

Aurelia Mondino[1], Alessandra Surace[2], Maria Grazia Baù[1], Federica Gallo[3], Massimiliano Bortolini[4], Maria Piera Mano[5]

[1]Città della Salute e della Scienza di Torino, Turin, Italy, [2]Ospedale Michele e Pietro Ferrero, Verduno, Italy, [3]Ospedale Regina Montis Regalis, Mondovì, Italy, [4]Ospedale degli Infermi ASL BI, Biella, Italy, [5]Università di Torino, Turin, Italy

Objective: Diet, physical activity and general lifestyle modifications are implicated in cancer prevention and could improve some chronic diseases (as metabolic syndrome). The aim of the study was to measure the effectiveness of a caloric restriction regime joined to a daily practice of physical and creative activities on some parameters related to the metabolic syndrome and the compliance of the patients to the proposed scheme.

Design: The pilot study involved three groups of volunteers who took part in a residential one-week lasting experimental period.

Setting: The program was composed by the first 4 days of a detox nutrition plan based only on vegetable products derived from organic, biologic, synergic and integrated farming, without animal proteins, fats and simple sugars. These 4 days were followed by a 3-days period of fasting or mimicking-fasting regime, consisting in one or two hypocaloric meals based on complex sugar, vegetables, oleaginous seeds and only in some cases vegetable protein. Partecipants: during the whole period, the participants were offered a daily postural physical activity program and a creative activity. Basal data of the participants were collected (T0). A medical evaluation was carried out to collect the personal and anthropometric data. During this basal evaluation (T0), height, waist circumference, waist-to height ratio (WtHR), glycemic value and blood pressure were collected and reevaluated at the end of the 7 days-experience (T1).

Results: Data of the three groups showed significant improvement in analyzed variables after the program.

Conclusions: An integrated lifestyle change has an impact on some measurable well-known metabolic parameters.

P1.56 POSTERS

Preconception period in women and men undergoing assisted reproduction: a Gender approach for reproductive health

Michela Cirillo[1], Maria Elisabetta Coccia[2], Arianna Dimmito[3], Cinzia Fatini[1]

[1]Experimental and Clinical Medicine, [2]Experimental, Clinical and Biochemical Sciences, "Mario Serio", University of Florence, Florence, Italy, [3]Women s' Health, Childhood and Adolescence, AUSL Romagna, Forlì-Cesena, Italy

Fertility represents an indicator of global health in women and men. The aim was to evaluate the lifestyle and risk factors playing a role in increasing the burden of cardiovascular diseases and to increase attention of clinicians who should envision a broader preconception approach in Assisted Reproductive Technology (ART) in women and in men.

In this cross-sectional study we investigated 90 Caucasian couples, referred to the Internal Medicine Clinic at the Assisted Reproductive Technology Centre, in order to better define in preconceptional period their cardiovascular risk profile, based on metabolic parameters and lifestyle behaviours.

We observed two-fold increase of overweight in men in comparison to women ($p = 0.006$). Values of waist ≥ 94 cm in men and ≥ 80 cm in women were present in 53.3% of men and 32.2% of women ($p = 0.007$). Values of WHR according to gender cut-off, were present in 64.4% of men and in 32.2% of women ($p < 0.0001$). In men we observed a significantly higher prevalence of hypertension ($p = 0.02$), significantly lower HDL-c ($p = 0.001$) and higher levels of total cholesterol ($p = 0.01$), LDL-c and triglycerides ($p = 0.001$). Sedentary behaviour was observed in about 60% of both genders. Alcohol consumption was reported by 42.2% of men and 26.7% of women ($p = 0.04$) and smokers were more prevalent among women (26.7%) than men (24.4%). We observed a lower adherence to Mediterranean Diet related to consumption of red meat and meat products ($p = 0.02$), as well as of legumes consumption ($p = 0.01$) in men, whereas sweet/pastries ($p = 0.05$) and fruits ($p = 0.06$) in women. Men and women with normal BMI, waist and WHR, showed a higher Mediterranean diet adherence in comparison to overweight/obese study population($p < 0.001$). Higher education level predicted the higher Mediterranean diet adherence in both gender ($p = 0.01$ for men, $p = 0.03$ for women).

This study paid attention on preconceptional health in couples planning ART. Women have a greater biological role in childbearing, whereas the role of men is underestimated. The need to conceive through ART offers a window of opportunity not only to evaluate cardiovascular profile and lifestyle factors in couples prior to conception, but also to manage comorbidities and promote health behaviours in order to improve fertility and health outcomes in both women and men at short and long-term.

P2.01 POSTERS

Change in circulating levels of endothelial progenitor cells and sexual function in women with type 1 diabetes

Antonietta Maio[1], Maria Ida Maiorino[2], Miriam Longo[2], Lorenzo Scappaticcio[3], Vlenia Pernice[3], Paolo Cirillo[3], Paola Caruso[2], Vanda Amoresano Paglionico[2], Giuseppe Bellastella[2], Katherine Esposito[2]

[1]Department of Advanced Medical and Surgical Sciences, [2]Department of Advanced Medical and Surgical Sciences, Unit of Endocrinology and Metabolic Diseases, [3]Department of Advanced Medical and Surgical Sciences, University of Campania Luigi Vanvitelli, Naples, Italy

Introduction: Female sexual dysfunctions (FSD) are complex conditions characterized by impairment of the female sexual cycle. Higher prevalence of FSD has been found in women with diabetes, as compared with matched healthy controls. Endothelial progenitor cells (EPCs) are circulating mononuclear cells participating in the neo-angiogenesis. There is evidence that circulating levels of EPCs are reduced in diabetic patients compared with age-matched subjects. The relationship between EPCs and sexual function during the menstrual cycle in women with diabetes has never been investigated.

Aim: The aim of this study is to investigate the circulating levels of EPCs and the change in sexual function during the menstrual cycle in women with type 1 diabetes (T1DM) compared with healthy women.

Materials and Methods: Thirty-six women with T1DM and 64 age-matched healthy controls, aged 18-30 years, with a stable couple relationship and no oral contraceptive use were included in the study. Blood samples were drawn in the follicular, ovulatory and luteal phases of the same menstrual cycle to assess sexual hormones levels, including FSH, LH, progesterone and estradiol. EPCs were quantified by flow cytometry. Sexual function was investigated using the Female Sexual Function Index (FSFI) and the Female Sexual Distress Scale (FSDS) during the three phases of the menstrual cycle.

Results: Compared with controls, women with diabetes showed significantly lower levels of both CD34+ ($p < 0.001$) and CD34+CD133+ cells ($p < 0.001$) in the ovulatory phase, and CD34+KDR+ cells in both the ovulatory phase and in the luteal phase ($p < 0.001$ for both). Diabetic women showed significantly lower total FSFI scores than control women in all the phases of the menstrual cycle. FSFI total score was predicted by both CD34+CD133+ and CD34+KDR+ cells in the follicular phase, CD34+ and CD34+KDR+CD133+ cells in the ovulatory phase, CD34+KDR+ and CD34+KDR+CD133+ cells in the luteal phase.

Conclusion: Young fertile diabetic women showed a worse sexual function and lower levels of EPCs as compared with healthy age-matched women during the different phases of menstrual cycle. EPCs count predict sexual function in this selected population.

P2.02 POSTERS

RNA sequencing in hypothalamic nuclei reveals distinct gene expression profiles in response to exercise and sex difference

Robby Zachariah Tom[1;2;3], Sebastian Cucuruz[1], Brian Lam[4], Giles Yeo[4], Susanna Marie Hofmann[1;2;3]

[1]Institute of Diabetes and Regeneration Research, Helmholtz Diabetes Centre, Germany, [2]Medizinische Klinik und Poliklinik IV, Ludwig-Maximilians-Universität München, Munich, Germany, [3]German Center for Diabetes Research (DZD), Neuherberg, Germany, [4]Wellcome-MRC Institute of Metabolic Science-Metabolic Research Laboratories, United Kingdom

Introduction: Continual exposure to an energy dense diet along with reduced physical activity drives obesity and metabolic disorders. Both sexes are susceptible to body weight gain and metabolic disorders, but the rate and extent, and response to lifestyle interventions like exercise are evident. The hypothalamus plays a pivotal role in the regulation of food intake, body weight and energy homeostasis. However, the sex-specific differences in hypothalamic function that contributes to diet-induced obesity and response to lifestyle interventions are largely unknown. Therefore, we characterized the transcriptomic profile of the arcuate (ARC), ventromedial (VMH), dorsomedial (DMH) and paraventricular (PVN) hypothalamic nuclei of male and female mice, that had access to both standard (SD) and high-fat diet (HFD), with or without voluntary running (VR) wheels.

Results: VR reduced diet-induced weight gain in both males and females, but males displayed proportionally greater weight reduction than females. Dietary choices were also influenced by exercise, with VR increasing calorie consumption in male mice exposed to both SD and HFD, while total calorie consumption in females were unaltered. Here, we show that the transcriptional profile of all four hypothalamic nuclei in response to VR is influenced by sex. In ARC, exercise reduced stress signaling pathways in both males and females. AMPK signaling and apoptosis signaling pathways were dominant in ARC and were differentially regulated by exercise and sex. In VMH, exercise modulated pathways associated with DNA damage and repair in a sex independent manner. Signaling pathways associated with synapse formation and neurogenesis were differentially regulated by exercise and sex. In DMH, pathways related to neural plasticity were regulated by exercise independent of sex, while sexual dimorphic differences were observed in synaptogenesis pathways in DMH. In PVN, exercise facilitated vascular remodeling pathways in both sexes, with sex-specific variations observed in inflammatory signaling pathways.

Conclusion: We have identified signaling pathways that are modulated by exercise in four hypothalamic nuclei in a sexual dimorphic manner, and argues for sex specific lifestyle interventions in the treatment of obesity and other metabolic disorders.

P2.03 POSTERS

Psychosocial factors as eligibility criteria for chronic kidney disease screening in women and men in a multi-ethnic sample

Frouke Kingma[1], Frédérique Voorhans[1], Liffert Vogt[2], Kitty Jager[3], Frans van Ittersum[2], Bert-Jan Van den Born[4], Eric Moll van Charante[5], Henrike Galenkamp[1], Vianda Stel[3], Irene van Valkengoed[1]

[1]Public and Occupational Health, [2]Nephrology, [3]Medical Informatics, [4]Internal and Vascular Medicine, [5]General Practice, Amsterdam UMC, Amsterdam, The Netherlands

Background: Chronic kidney disease (CKD) is associated with a large public health burden in women and men. Current eligibility criteria for screening may miss a substantial proportion of those with prevalent CKD. We determined the added value of psychosocial factors (e.g., related to socio-economic status, depression, stress and social isolation, which may be associated with an increased risk of CKD) on top of current eligibility criteria for screening for identifying women and men with prevalent CKD.

Methods: We included 20990 participants of Dutch, South-Asian Surinamese, African Surinamese, Ghanaian, Moroccan, and Turkish origin from the HELIUS study in Amsterdam, the Netherlands (2011-2015). Prevalent CKD was defined as stage G1A23 to G5 according to the KDIGO criteria. We determined the contribution of psychosocial factors to the base model (anamnestic) and extended base model (anamnestic and clinical criteria) by the LR-test and Aikake's Information Criterion. The final model included the factors that significantly improved the models. Finally, we calculated the area under the receiver operator characteristic (AUC; with 0.70 defined as moderate), in men and women overall and across ethnic groups.

Results: The final model for men included a low occupational level, employment status and primary earner status on top of anamnestic risk factors, and occupation level and stress at home for women. This model had a higher AUC than the base model in men (AUC 0.70, 95%CI:0.68-0.73 vs. 0.66, 95%CI: 0.64-0.69). In women, the AUCs were 0.62, 95%CI:0.60-0.64 and 0.61, 95%CI:0.59-0.63, respectively. Across ethnic groups, the AUC exceeded 0.70 in Dutch, South Asian and African Surinamese men, but not in the other groups or in women. The AUC was similar for the final versus extended base model in women and men.

Conclusion: Some psychosocial factors added to prediction of CKD on top of current anamnestic eligibility criteria, but not the extended criteria, for screening in men. However, the predictive power is moderate, and heterogeneous across ethnic groups.

P2.04 POSTERS

Gender differences in the prioritisation of health outcomes in diabetes: Informing gender-sensitive diabetes care

Ann-Kristin Porth[1], Yuki Seidler[2], Anouk Sjoukje Huberts[3], Carmen Hurtado Del Pozo[4], Angèle Bénard[5], David Hopkins[6], David Nathanson[7], Eric Sijbrands[8], Katarina Eeg-Olofsson[9], Kathryn Hamilton[10], Yvonne Hasler[11], Tanja Stamm[2], Alexandra Kautzky-Willer[1]

[1]Department of Internal Medicine III, Division of Endocrinology and Metabolism, [2]Center for Medical Statistics, Informatics and Intelligent Systems, Section for Outcomes Research, Medical University Vienna, Vienna, Austria, [3]Department of Quality and Patientcare, [8]Department of Internal Medicine, Erasmus Medical Center, Rotterdam, The Netherlands, [4]JDRF International, New York, USA, [5]Vall d'Hebron Institute of Research (VHIR), Barcelona, Spain, [6]Department of Diabetes, King's College London, London, United Kingdom, [7]Department of Medicine, Karolinska Institutet, Huddinge, Sweden, [9]Department of Molecular and Clinical Medicine, Institute of Medicine, University of Gothenburg, Gothenburg, Sweden, [10]Florence Nightingale Faculty of Nursing and Midwifery, King's College London, London, United Kingdom, [11]Medtronic, Zurich, Switzerland

Background: Sex and gender can affect diabetes outcomes. Evidence suggests this is mediated by various biological and sociocultural factors, including hormones and behaviour. However, little is known about associations between gender and patient-reported outcomes which reflect subjective perceptions of disease. This abstract presents such gender differences in results of a consensus process to define a person-centred outcome set for routine diabetes care in Europe.

Methods: A three-round online Delphi study based on previously identified candidate outcomes was undertaken to reach consensus on the diabetes dataset. The importance of including an outcome in the dataset was rated on a 10-point-Likert scale with consensus defined as 70 % voting ≥ 7. In an exploratory analysis the voting results were stratified according to the indicated gender of participating patients.

Results: In total, 60 patients answered the third Delphi survey of which 45 % were women and 55 % men. Consensus on inclusion in the dataset was achieved for most outcomes in both subgroups. However, two outcomes reached consensus among women only: Eating problems and Side effects; and three among men only: Perceived control over diabetes, Social support and Lifestyle. The proportion of women and men voting ≥ 7 differed significantly for two outcomes: Eating problems (74 % women vs 49 % men) and Perceived control over diabetes (67 % women vs 88 % men). Yet, women were found significantly younger and more likely to be living with type 1 diabetes compared to men. Subsequent analyses showed that of the mentioned outcomes Eating problems were rated significantly differently in importance depending on the type of diabetes present (higher priority for type 1 than type 2 diabetes). No such age- or diabetes type-specific differences were found for the other outcomes. There was no explicit association of the outcomes (data not shown).

Conclusion: Our results provide initial evidence that men and women prioritise self-reported diabetes outcomes differently: while feeling in control was a major concern for men, women felt it was important to be mindful of side effects. Clinicians may want to consider this to measure outcomes in a personalized, gender-sensitive way and provide gender-specific diabetes care that supports the achievement of personal treatment goals.

P2.05 POSTERS

Sex and gender differences in migraines

Maria Francesca Rossi[1], Antonio Tumminello[1], Carlotta Amantea[1], Alessandra Daniele[1], Maria Rosaria Gualano[2], Ivan Borrelli[3], Paolo Emilio Santoro[3;4], Umberto Moscato[1;3;4;5]

[1]Department of Life Sciences and Public Health, Section of Occupational Health, Università Cattolica del Sacro Cuore, Rome, Italy, [2]Department of Public Health Sciences and Paediatrics, University of Torino, Turin, Italy, [3]Department of Health Science and Public Health, Università Cattolica del Sacro Cuore, Rome, Italy, [4]Department of Woman and Child Health and Public Health, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, [5]Center for Global Health Research and Studies, Università Cattolica del Sacro Cuore, Rome, Italy

Introduction: Since the introduction of Gender Medicine numerous studies have been performed to evaluate the differences based on sex (biological characteristics) and gender (socially and culturally determined). Numerous studies have been aimed to evaluate these differences: an example of this are migraines, which are far more common in females compared to males. Migraines are one of the most relevant neurological illnesses, but their clinical relevance has often gone underrated, misdiagnosed or mistreated.

Methods: A narrative search was performed on the most relevant articles describing sex and gender differences in migraines.

Results: Migraines' prevalence in Italy is 32.9% in women and 13.0% in men, and they are more frequent in adults between 20 and 50 years of age. Women also report longer attack duration and recovery time, as well as an increased risk of progression from episodic to chronic migraines, resulting in greater disability (34% increased odds). This difference is, at least partly, explained by hormonal differences, as well as by differences in brain structure, genetic polymorphisms and neuronal pathways. It is estimated that 20-25% of migraines in women are menstrual migraines: premenstrual change in estrogens levels has been associated with migraine onset, whilst the same is not true for progesterone. Social factors also play a role in the different incidence

of migraines: victims of intimate partner violence and adverse childhood experiences, which are largely women, have an increased risk (38% increased odds) for migraine. In workers, migraines are mostly associated with strenuous physical work in men, whilst migraines triggered by night shifts, lack of sleep, or irregular sleep patterns are more common in women. Migraines' treatment is affected by the stigmatization surrounding headaches, because of the perception of this illness as a "feminine disease", causing a negative impact on the lives of all individuals with migraines, but especially on women.

Conclusions: Important sex and gender differences exist for migraines, from the prevalence to the etiology, influencing clinical progression and treatment, affecting women more and with generally worse outcomes. A reappraisal of this illness as a disabling condition differently affecting male and female workers appears as mandatory.

P2.06 POSTERS

The role of nutrition on Parkinson's disease: a systematic review

Laura Rizzi[1], Vittorio Bianchi[2], Fahad Somaa[3], Elena Bresciani[1], Ramona Meanti[1], Laura Molteni[1], Antonio Torsello[1]

[1]Medicina e Chirurgia, University of Milano Bicocca, Monza, Italy, [2]Clinical Center Stella Maris, San Marino, San Marino [3]Department of Occupational Therapy, King Abdulaziz University, Saudi Arabia

Parkinson's disease (PD) in elderly patients is the second most prevalent neurodegenerative disease. Risk of developing PD is twice as high in men than women, but women have a higher mortality rate and faster progression of the disease.

The pathogenesis of PD is associated with dopaminergic neuron degeneration of the substantia nigra in the basal ganglia, causing classic motor symptoms; one possible source of male-female differences in the clinical and cognitive characteristics of PD is the effect of estrogen on dopaminergic pathways in the brain. Multifactorial interactions between oxidative stress, mitochondrial dysfunction, and neuroinflammation are putative mechanisms, but also nutrition plays an essential role in the pathogenesis and evolution of this disease.

There is growing evidence that PD affects women and men differently. Compared to men, women are diagnosed with PD less often, respond differently to current therapies, have less access to, and lower use of expert care, and are less socially supported. These factors also combine so that women with PD have poorer quality of life than men.

We performed a systematic search in MEDLINE, EMBASE, and WEB OF SCIENCE databases from 2000 until present. Only randomized clinical trials (RCTs), observational case-control studies, and follow-up studies were included. We retrieved fifty-two studies that met the inclusion criteria and most of them investigated the effects of malnutrition and Mediterranean diet (MeDiet) on PD incidence and progression.

Omega-3 and -6, and vitamins supplementation appeared poorly effective in protecting neuron degeneration. Insulin activity is a prevalent factor contributing to brain health, while malnutrition correlated with the higher development of dementia and mortality. Malnutrition activates also a gut-microbiota-brain axis dysfunction, that exacerbates the neurogenerative process. Polyphenols, polyunsaturated fatty acids, and coffee intake could have a potential protective effect; conversely, milk and its accessory products can increase PD risk.

In conclusion, we suggest that nutritional intervention could improve clinical outcomes and reduce the disease progression of PD both in man that women.

P2.07 POSTERS

Olfactory and taste disorders in Long-COVID-19 syndrome: are there gender differences?

Tiziana Ciarambino[1], Pietro Crispino[2], Ombretta Para[3]

[1]Internal Medicine, Hospital of Marcianise, Marcianise, Italy, [2]Internal Medicine, Hospital Latina, Latina, Italy, [3]Internal Medicine, Hospital Careggi, Florence, Italy

Introduction: The precise symptomatic manifestations of the long-term COVID-19 remain heterogeneous and can vary so much that one thinks in the future of the subdivision of these into multiple subtypes or phenotypes. In different studies of COVID-19 survivors who developed persistent symptoms, it has been reported that smell/taste disturbances were associated with female.

Methods: Studies were identified by Pubmed, Web of Science and Scopus database from inception to November 2, 2021. The search included the following terms: neuro covid and gender, neuro covid and gender association, olfactory and taste disorders manifestations and gender. Our literature search identified 295 studies, of which 196 were screened and 7 were included in the meta-analysis. We excluded 288 records because they did not include relevant reports or data. 7 retrospective cohort studies were eligible as per inclusion criteria and so were included in the analysis.

Results: The random effect model showed significant difference with regard to risk of smell / taste deficit, with higher risk in women [OR 2.13 (95% CI 1.58, 2.88), $p < 0.0001$]. Q for heterogeneity is 18.95 ($p = 0.0043$).

Discussion: In conclusion findings from this systematic review demonstrates that the gender profile of being female, can be a risk factor for long-term olfactory symptoms related to COVID-19.

P2.08 POSTERS

Sex-related differences of MMPs in neurological disorders: a new perspective for these biomarkers

Tiziana Bellini[1], Maria Cristina Manfrinato[1], Alessandro Trentini[1], Massimiliano Castellazzi[1]
[1]University center of studies on Gender Medicine, University of Ferrara, Ferrara, Italy

Brain development, structure and function differ according to sex. These differences are probably at the basis of sex-related discrepancies in susceptibility, progression, pharmacological tratment and pathological scores of various diseases of the central nervous system (CNS).

A sex-related inequality can, in fact, be found in degenerative, autoimmune and psychiatric diseases as well as in pathologies of the autism spectrum. Matrix metalloproteinases (MMPs), a family of calcium- and zinc-dependent endopeptidases involved in the turnover and remodeling of the extracellular matrix, have been proposed as potential markers of several CNS diseases. In vitro studies demonstrated that MMPs expression and activity can be modulated by sex hormones, however, only a few in vivo studies investigated possible sex-related differences in MMPs expression and/or activity in patients with CSN disorders. The aim of this study was to gather the current knowledge on potential sex-related differences in MMPs in CNS disorders.

From literature research we have shown that despite the small number of studies that emerged, it was possible to identify at least 4 MMPs differently expressed in the two sexes. MMP-1 were higher in females with multiple sclerosis (MS) and in controls, while MMP-3 was elevated in males patients with Alzheimer, mild cognitive impairment and epilepsy, and was associated with long-term functional outcomes during intracerebral hemorrhage (ICH). MMP-9 was higher in males with ischemic stroke and MMP-10 was higher in females with MS and associated with long-term functional outcomes during ICH. Despite the limited data currently available, it clearly emerges that it is important for future studies to analyse research data also stratifying by sex. In this way, there will be a better understanding of possible differences in pathogenetic mechanisms between females and males, as well as an improvement in the application of biomarkers in light of personalized medicine and a better care for patients.

P2.09 POSTERS

Olanzapina and aloperidolo by gender differences: preliminary data

Tiziana Ciarambino[1], Carolina Bologna[2], Eduardo Pone[2], Ada Maffettone[3], Maria D'Avino[4]
[1]Internal Medicine, Hospital of Marcianise, Marcianise, Italy, [2]Internal Medicine, Hospital del Mare, Naples, Italy, [3]Internal Medicine, Ospedale Monaldi, Naples, Italy, [4]Internal Medicine, Ospedale Cardarelli, Naples, Italy

Background: Women are often perceived as having better outcomes than men in psychotic illnesses. Few studies described the differences by gender in olanzapine and aloperidolo therapy.

Aims: The aim of this paper is to describe the gender differences in these antipsychotic drugs.

Methods: We included 98 COVID-19 patients with mean age 71 ± 11 years old and 64% were male. All patients were admitted on the Sub-intensive Unit Care. All patients were affected by psychosis disorders and were subdivided in 2 groups: group A treated with olanzapine and group B treated with aloperidolo. We used Wilcoxon test or Fisher test for the statistical analisys.

Results: We described that long-stay was significantly increased in olanzapine group (19 ± 7.3 vs 12 ± 3 days, respectively, $p < 0.0001$). However, we reported that group A required a number of days with non-invasive mechanical ventilation about 2 times longer than those treated with aloperidolo (12 ± 5 vs 6 ± 4 days respectively, $p < 0.0001$). No differences we reported by gender.

Conclusion: Our data are preliminary and need a larger sample and correcting for confounding factors (such as comorbidities) that may underestimate the role of gender.

P2.10 POSTERS

The importance of teaming up for gender differences in care and gender equality in work

Marina Rizzo[1], Fabiola Bologna[2], Ebba Carmela Buffone[3], Maria Vittoria Calloni[4], Rosa Maria Gaglio[5], Maria Antonietta Volonte[6], Cristina Paci[7]
[1]UOC Neurologia - Neuroscienza ed Emergenza con Trauma Center, Az. Osp. Ospedali Riuniti Villa Sofia Cervello, Palermo, Italy, [2]UOC Neurologia - Neuroscienze, Azienda Papa Giovanni XXIII Bergamo, , Italy, [3]Cerris-RSA Marzana, Azienda ULSS 9 Scaligera, Verona, Italy, [4]UOC Neurologia - Neuroscienze, ASST OVEST Milanese, Legnano, Italy, [5]UOC Neurologia, P.O. San Giovanni di Dio di Agrigento, Agrigento, Italy, [6]UOC Neurologia - Neurologico, Istituto Scientifico Ospedale San Raffaele, Milan, Italy, [7]UOC Neurologia, PUOI Area Vasta 5, San Benedetto del Tronto, Italy

"Women in Neuroscience" is a movement born in Rome

on May 9, 2012 as a tool at the service of women working in the field of Neuroscience with the aim to stimulate discussion on topics such as sex and gender medicine in neuroscience. Training activities are carry out throughout the country, with a multidisciplinary approach and with attention to clinical practice.

In 2016 the Movement was supported by the "Italian Society of Gender Medicine in Neuroscience" (S.I.Me. Ge.N.) open to doctors in Neuroscience, both women and men, with the aim of promoting scientific research on gender. Attention to sex and gender in research must be considered a routine methodology from the collection of data, to their processing which must take place in a disaggregated way, up to the interpretation and communication of the results. Women in Neuroscience / SIMeGeN follows the indications of the European Association of Science Editors (EASE) which in 2016 published the S.A.G.E.R. "Sex and Gender Equity in Research" designed for authors and publishers.

The non-profit Women's Movement in Neuroscience also aims to promote equal opportunities, to allow professional women who do not hold high level positions to organize courses and conferences, to support young and old women to come out and to assert that professional space of their own right. For this purpose, a "format" has been developed which allows, following a few guidelines, to carry out successful events in full autonomy. The congress / training course must include the female presence of at least 2/3 of the speakers, the attention to the differences of sex, age and gender in each session and the multidisciplinary approach for each pathology, with the involvement of several professionals in the field of Neuroscience. Just apply for complete assistance in organizing the event.

There are now numerous experiences of female doctors who have had the opportunity to organize events in their city involving the colleagues, local managers of their own departments and territory in which they operate and to bring out their professionalism in their own working context.

This year marks the tenth anniversary of the movement which, despite the interruptions due to the pandemic, has more than 30 ECM training courses organized by teams of women in different cities, from the north to the south of Italy.

P2.11 POSTERS

Sex and gender differences in dementia: hypotheses and strategies

Cristina Paci[1], Fabiola Bologna[2], Ebba Carmela Buffone[3,4], Maria Vittoria Calloni[5], Rosa Maria Gaglio[6], Maria Antonietta Volonte[7], Marina Rizzo[8]

[1]UOC Neurologia, PUOI Area Vasta 5, San Benedetto del Tronto, Italy, [2]UOC Neurologia, Neuroscienze, Azienda Papa Giovanni XXIII, Bergamo, Italy, [3]Cerris-RSA Marzana, UOSD Cerris - Marzana - Verona, Italy, [4]UOSD Cerris - Marzana, AULSS9 Scaligera, Verona, Italy, [5] Uoc Neurologia, Neuroscienze, ASST Ovest Milanese, Legnano, Italy, [6]UOC Neurologia, Neuroscienze, PO San Giovanni di Dio, Agrigento, Italy, [7]Neurologico, Istituto Scientifico Ospedale San Raffaele, Milano, Italy, [8]UOC Neuroscienze ed Emergenza con Trauma Center, Azienda Ospedaliera Ospedali Riuniti Villa Sofia Cervello, Palermo, Italy

The number of people living with dementia worldwide is currently estimated at 35.6 million. Women are about 2/3 of all patients with dementia. Rocca et al states that three scenarios between sex and gender in the risk of disease must be considered: 1) risk factors overlapping in M and F but have a stronger effect on both gender and sex groups (eg the APOE genotype), 2) risk factors that have the same effect on M and F but are common in only one group of both gender and sex because they are gender-dependent (e.g. level of education and type of education), 3) risk factors restricted to the Gender group only (eg oophorectomy). In neuropsychological field Alzheimer disease affects women differently than men: naming and word-recognition skills have been reported to be more adversely affected in female patients with AD than in male patients, and the differences have been shown to be sustained over time, males do best on visuospatial and episodic and semantic memory tests. Sex and gender differences in behavior :male patients exhibit greater problems than female patients in wandering, abusiveness and social impropriety, particularly in the more advanced stages of the disorder". On the contrary regression analyses showed that age, education level, and dementia severity did not significantly predict the male advantage. Another difference is the cerebral connection: in males the coordinated perception-action prevails, in the women greater analytic-intuitive connection. It has also been shown that isolation reduces neuronal connectivity and this reality that must be taken into consideration especially in women who, living longer, are at greater risk of loneliness. In conclusion, women are at greater risk of developing dementia especially of developing Alzheimer's disease. So the strategy for women to adopt right now is: raise the level of education, lead a more active social life, exercise and cure diseases.

P2.12 POSTERS

Are sex and gender considered in head and neck cancer clinical studies and trials?

Aurora Gaeta[1], Oriana D'Ecclesiis[1], Lavinia Ghiani[1], Paolo Maugeri[1], Marta Tagliabue[2], Camilla Veneri[3], Camilla Gaiaschi[3], Mohssen Ansarin[2], Sara Gandini[1], Susanna Chiocca[1]

[1]Department of Experimental Oncology, [2]Division of Otolaryngology Head & Neck Surgery, European Institute of Oncology IRCCS, Milan, Italy, [3]GENDERS (Gender & Equality in Research and Science), University of Milan, Milan, Italy

Purpose: Our study aims at observing the consideration given to sex and gender (S/G) in head and neck cancer (HNC) studies. Since Human papilloma virus (HPV) infection is an important risk factor in a subset of HNC, we also searched for mention of HPV in this specific subset, namely the oral cavity and oropharynx.

Method: We investigated the inclusion of sex and/or gender in HNC studies on ClinicalTrials.gov (AACT), collecting data up to 12 April 2022. Categorical variables were summarised with frequencies and percentages. Differences between groups were tested using Pearson's Chi-square test or Fisher's test for categorical variables.

Results: We identified 1672 ClinicalTrials.gov registered HNC studies that were not withdrawn or terminated, which admitted all sexes: 640 (38%) explicitly addressed S/G solely as a recruitment criterion and only 89 (5%) mention S/G as a planned analytical variable. Proportionally more observational/patient registry studies treated S/G as an analytical variable than interventional studies (10% vs 5%, p-value ≤ 0.001). In proportion S/G mention as analytical variable was different for samples below and above 100 units (p-value ≤ 0.001): 8% of the studies involved more than 100 subjects and 5% less than 100 subjects. There was a significant difference between the S/G role in different interventional study phases (P-value ≤ 0.001), the highest percentage of studies that mentioned S/G as an analytical variable was observed in interventional studies where phase was not applicable (7%) such as pilot, feasibility and diagnostic studies. Studies involving oral cavity-oropharynx had significantly more studies with samples above 100 units than other head and neck studies (38% vs 25%, p-value = 0.002). HPV was mentioned in 18% of oral cavity-oropharynx studies and there was no statistically significant difference between the mention of HPV in studies concerning oral cavity-oropharynx (p-value = 0.4) and other head and neck studies.

Conclusion: Our analysis shows that, although fundamental, in studies concerning HNC the S/G variable is not often taken into consideration among those investigated. We trust that our study will evidence that S/G needs to be accounted for during planning of HNC studies to best imbue science and medicine with the proper biology and cultural differences.

P2.13 POSTERS

Sex hormones and melanoma: implications of Estrogen Receptor β activity

Rossella Puglisi[1], Giada Pontecorvi[2], Maria Bellenghi[2], Sabrina Tait[2], Valentina Tirelli[3], Paola Matarrese2, Alessandra Carè[2], Gianfranco Mattia[2]

1Istituto Superiore di Sanità, Center for Gender-Specific Medicine, Roma, Italy, 1Istituto Superiore di Sanità, Center for Gender-Specific Medicine, Roma, Italy, 3Istituto Superiore di Sanità, Core facilities, Roma, Italy

Melanoma is the most aggressive and deadly type of skin cancer and growing evidence attributes to gender an important role in melanoma incidence, progression and response to therapy. Epidemiological studies display total incidence of cutaneous melanoma higher in men than in women, with a significant female survival advantage. Gender differences in the onset and progression of melanoma can be partly associated with the role played by sex hormones, but the actual relevance of hormonal influences is still unclear. Indeed, ERα and ERβ play opposite roles, and the balance between the two ERs expression possibly relevant for tumor development and progression. There is broad consensus on ERβ tumor suppressive activity being its expression inversely related to melanoma progression. Based on these data and looking at possible gender-specific factors, we focused on the possible molecular mechanism associated with ERβ activation by using a synthetic non-steroidal selective ERβ agonist LY500307 on some human melanoma cell lines, characterized by different levels of ER expression, genetic background and tumour progression [1]. Interestingly, we demonstrated a selective effect of LY500307 on melanoma cell lines in terms of cell cycle blockage, apoptosis induction and partial epithelial-mesenchymal reversion. We conducted a bioinformatics analysis taking advantage of the Skin Cutaneous Melanoma patient database (TCGA, The Cancer Genome Atlas) to investigate both ERα and β expression in the total melanoma patient population and in BRAF and NRAS mutated subgroups, focusing on their modulation from primary to metastatic stage. Proteomic analyses are currently ongoing to better clarify the pathway activated in NRAS and BRAF cell lines under LY500307 treatment. A point we should further address concerns the existence of any relationship between ER expression and the oncogenic mutational status during disease progression, whenever possible looking at gender specificities.

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P2.14 POSTERS

Described differences between men and women regarding chemotherapeutic agents for treatment of small- and non-small cell lung cancer

Alan Fotoohi[1;2], Linnéa Karlsson Lind[3], Diana Rydberg[2;4], Karin Schenck-Gustafsson[4;5]

[1]Department of Laboratory Medicine, Division of Clinical Pharmacology, [4]Department of Medicine, Division of Clinical Epidemiology, [5]Centre for Gender Medicine, Karolinska Institutet, Stockholm, Sweden, [2]Clinical Pharmacology, Karolinska University Hospital, Stockholm, Sweden, [3]Department of Knowledge Development, Health and Medical Care Administration, Stockholm, Sweden, Stockholm, Sweden

Historically, lung cancer rates have been higher in men than women. The incidence of lung cancer has decreased in men during the last decades but has increased in women. Women with lung cancer generally have a more favorable survival compared to men. Chemotherapeutic agents are one of the pharmacological groups covered in the knowledge database Janusmed Sex and Gender, where healthcare professionals can find evidence-based information on sex and gender aspects for individual medicines. We hypothesized that sex/gender differences with regards to different chemotherapeutic agents have been studied and reported in the scientific literature.

PubMed was searched for publications with sex-divided results regarding efficacy and safety of cytostatic agents used in treatment of non-small cell lung cancer (NSCLSC) and small cell lung cancer (SCLSC). In all, seven substances were included: cyclophosphamide, ifosfamide, carboplatin, cisplatin, docetaxel, paclitaxel, gefitinib.

Randomized clinical trials show that women are associated with better treatment response and prognosis in advanced NSCLC. For two of the included substances, no publications with a sex-analysis of efficacy in NSCLC were identified (docetaxel, ifosfamide). For several of the chemotherapeutic agents, the risk of adverse reactions, such as hematological toxicity, nephrotoxicity, and nausea/vomiting, are more common in women. However, chemotherapeutic agents are usually given as combination therapy and evaluation of a particular agent's sex-related effects and adverse effects during combination therapy is therefore complicated.

Increasing amount of data on sex differences are published regarding chemotherapeutic agents. The difference mainly concerns a better outcome in women but also an increased risk of some specific adverse reactions in women.

P2.15 POSTERS

A prospective observational study about gender differences in advanced NSCLC in the era of precision medicine

Tiziana Vavala[1], Mauro Papotti[2;3], Enrica Milanesi[1], Luisa Delsedime[3], Alessandra Pittaro[3], Paola Francia Di Celle[3], Luisella Righi[4], Angela Listì[4], Chiara Riganti[4], Carmen Cristiano[1], Chiara Bonfadini[1], Francesca Arizio[4], Gitana Scozzari[5], Ida Raciti[6], Antonio Carmozzino[6], Umberto Ricardi[4], Libero Ciuffreda[1], Silvia Novello[4]

[1]Department of Oncology, SC Oncology 1, [6]Clinical Risk Management Unit, AOU Città della Salute e della Scienza di Torino, Turin, Italy, [2]University of Torino, Turin, Italy, [3]Department of Oncology, University of Torino and Pathology Division, AOU Città della Salute e della Scienza di Torino, Turin, Italy, [4]Department of Oncology, University of Torino, Turin, Italy, [5]Hospital Medical Direction, Ospedale Molinette, AOU Città della Salute e della Scienza di Torino, Turin, Italy

Background: Lung cancer is the leading cause of cancer-related death in both men and women in developed countries, with a progressive increase of incidence observed in women in the last 50 years. Sex differences in lung cancer have been documented in terms of clinical presentation, pathological patterns, treatment related toxicities and survival.

The aim of this study is to collect a prospective series of advanced stage non-small cell lung cancer (NSCLC) cases, to identify in a pre-planned manner, through Next Generation Sequencing (NGS) technology, potential gender differences based on their mutational and immunological status and gene expression levels.

Methods: One hundred patients, including 50 women and 50 men, older than 65 years-old with newly diagnosed stage IV NSCLC will be prospectively enrolled at two different University Hospitals. Smoking history, clinical and anamnestic data will be collected. A detailed obstetrical-gynaecological or urological medical history will be recorded from female and male patients, respectively.

Formalin fixed, paraffin embedded diagnostic samples of each patient will be processed to obtain a DNA genomic library to define both mutational and immunological profiles. Immunohistochemistry for ERbeta will be evaluated according to the H-score method. Correlations among mutational and immunological profile, transcriptional patterns, protein levels and clinico-pathological characteristics will be assessed.

Conclusions: At present, clinical approaches to lung cancer management do not routinely consider the patient's gender. Nevertheless, potential identification of differential expression of specific biomarkers might deepen knowledge about molecular basis of this disease thus allowing gender-linked specific treatments.

P2.16 POSTERS

A preliminary retrospective evaluation about gender differences in molecular biology of advanced non small cell lung cancer patients in a single institution

Enrica Milanesi[1], Tiziana Vavala[1], Agostino Ponzetti[2], Carmen Cristiano[1], Chiara Bonfadini[1], Sara Bustreo[1], Laura Fanchini[1], Roberto Filippi[1], Patrizia Lista[1], Patrizia Racca[1], Giuliana Ritorto[1], Maria Antonietta Satolli[3], Rosella Spadi[1], Silvana Storto[1], Maria Maddalena Demichelis[1], Bruno Castellino[1], Tiziana Scirelli[1], Gitana Scozzari[4], Ida Raciti[5], Umberto Ricardi[3], Mauro Papotti[6], Antonio Scarmozzino[4], Libero Ciuffreda[1]

[1]Department of Oncology, SC Oncology 1, [5]Clinical Risk Management Unit, AOU Città della Salute e della Scienza di Torino, Turin, Italy, [2]SC Oncologia ed Ematologia, Ospedale Regionale "U. Parini", Aosta, Italy, [3]Department of Oncology, [6]Department of Oncology, University of Torino and Pathology Division, University of Torino, Turin, Italy, [4]Hospital Medical Direction, Ospedale Molinette, AOU Città della Salute e della Scienza di Torino, Turin, Italy

Background: Stage IV non-small cell lung cancer (NSCLC) management has radically improved in the last few years because of a better histology selection and availability of molecular biomarkers, with multiple innovative approaches including immunotherapy. In the last few years, differences between sexes have also been confirmed in terms of clinical evidence, pathological, biomolecular characteristics and, finally, survival. The aim of this study is to collect a retrospective series of advanced stage NSCLCs, to identify potential sex differences of selected tumor-associated genes, to further evaluate, in a pre-planned manner, a deep both mutational and immunological status.

Methods: From January 2016 until December 2021, men and women diagnosed with advanced NSCLC referring to AOU Città della Salute e della Scienza di Torino University Hospital were retrospectively collected. Specific end-points were: the proportion of Epidermal Growth Factor (EGFR) activating mutations in men and women at first diagnosis, the proportion of Anaplastic Lymphoma Kinase (ALK) rearrangement and finally the Programmed-Death Ligand-1 (PDL-1) Tumor Proportion Score (TPS) expression in the two sexes.

Results: In this preliminary analysis N = 398 advanced NSCLC patients were included. Of them, N = 262 were males and N = 136 were females (median age: 67 years-old, range 35-85 years-old) with the majority of them with adenocarcinoma histology, N = 330 (82.2%). On the total population, activating EGFR mutations have been evidenced in 8% of males and 25.3% of female patients, respectively, while ALK rearrangement has been detected in 2% of male patients and 5.5% of female ones. Finally, PDL-1 TPS > 50% has been identified in 15% of male patients and 19% of female ones.

Conclusions: Currently lung cancer management does not count on gender. This evaluation represents a hypothesis generating proposal to identify, in subsequent observational studies, multiple biomarkers with different expression and their clinical impact on disease evolution in the two sexes.

P2.17 POSTERS

Trends in women's leadership of oncology clinical trials

Ithai Waldhorn[1], Tomer Meirson[2], David Bomze[3]

[1]Division of Oncology, Rambam Health Care Campus, Haifa, Israel, [2]Davidoff Cancer Center, Rabin Medical Center-Beilinson Hospital, Petah Tikva, Israel, [3]Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel

It has been widely reported that women are underrepresented in leadership positions within academic medicine. This study aimed to assess trends in women's representation as principal investigators (PIs) in oncology clinical trials conducted between 1999 and 2019. The gender of 39,240 PIs leading clinical trials was determined using the gender prediction software Genderize.io. In total, 11,516 (27.7%) women served as PIs. Over the past 20 years, an annual increase of 0.65% in women PIs was observed. Analysis by geographic distribution revealed higher women's representation among PIs in North America and Europe compared to Asia. Industry-funded trials were associated with lower representation of women PI than academic-funded trials (31.4% vs. 18.8%, $p < 0.001$). Also, women were found to be underrepresented among PIs of late-phase as compared to early-phase studies (27.9%, 25.7%, 21.6%, and 22.4% in phase I, II, III, and IV, respectively; $p < 0.001$). Furthermore, an association was found between the PI's gender and enrolment of female subjects (50% vs. 43% female participants led by women vs by men, respectively, $p < 0.001$). Taken together, while the gender gap in women's leadership in oncology trials has been steadily closing, prominent inequalities remain in non-Western countries, advanced study phases and industry-funded trials and appear to be linked to a gender gap in patient accrual. These observations can serve for the development of strategies to increase women's representation and to monitor progress toward gender equality among PIs of cancer clinical trials.

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P2.18 POSTERS

Lymphedema, water-based exercise and gender: a scoping review of current literature

Maria Chiara Maccarone[1], Erika Venturini[2], Erica Menegatti[3], Sergio Gianesini[3;4], Stefano Masiero[1;2]
[1]Physical Medicine and Rehabilitation School, University of Padova, [2]Rehabilitation Unit, Department of Neuroscience, University of Padova, Padua, Italy, [3]Department of Morphology, Surgery and Experimental Medicine, Vascular Diseases Center, University of Ferrara, Ferrara, Italy, [4]Department of Surgery Uniformed Services University of the Health Sciences, Bethesda, USA

Introduction: Lymphedema is a chronic disease of the lymphatic vascular system characterized by impaired lymphatic return. Primary lymphedema seems to be sex-linked, with an average ratio of one male for three female, while cancer-associated lymphedema prevalence is estimated to be the same in males and females, women representing the majority of patients due to the frequency of breast cancer than to an increase susceptibility to secondary lymphedema. Nevertheless, the role of female hormones is still being defined. There is currently little evidence on aquatic treatment effects on patients with lymphoedema and the role of gender has been poorly investigated. The aim of this scoping review is to evaluate the impact of water-based exercise on pain, limb motor function, Quality of Life (QoL), and limb volume among patients of both sexes affected by lymphedema.

Materials and Methods: A scoping review examining clinical studies and Randomized Controlled Trials (RCTs) published in English from 2000 to 2021 was conducted screening MEDLINE (Pubmed) and PEDro databases.

Results: The search produced a total of 88 studies. 8 RCTs and one clinical study were included. The largest number of studies concerned secondary upper extremity lymphedema, focusing on breast cancer related lymphedema and considering exclusively female subjects. Only two studies were identified concerning lower limb lymphedema, of which one considered a population of both sexes with secondary or primary lymphedema. Shoulder range of motion, lymphedematous limb strength, pain perception and QoL seemed to improve after performing a water-based exercise protocol. The aquatic exercise effect on limb volume varied in the study from beneficial to not significant. No studies reported adverse events.

Conclusion: This review shows the potentials of aquatic exercise in lymphedema management, but at the same time it underlines multiple limitations due to the heterogeneity in study population and physical activity protocols. In addition, the review highlighted the lack of information regarding the sex-related difference in the effects of water treatment. Further investigations should dissect all the possible variables, investigating also the biopsychosocial impact of lymphedema among male and female patients.

P2.19 POSTERS

Gender differences in Italian pediatric obese subjects

Isabella Tarissi De Jacobis[1], Elena Inzaghi[1], Annalisa Deodati[1], Annalisa Grandin[1], Alberto Villani[1]
[1]Pediatria, Ospedale Pediatrico Bambin Gesù, Rome, Italy

Background: Significant aspects of metabolic homeostasis are regulated differently in males and females and sex differences can influence diagnostic approach and therapeutic responses. The underlying mechanisms accounting for gender difference remain to be established and may involve genetic and hormonal factors.

Aim: This study aimed at evaluating gender differences in anthropometric and metabolic parameters in a large cohort of obese children.

Methods and Results: We conducted a retrospective study in 581 children and adolescents referred to our Hospital for obesity (BMI > 95°pc). All patients underwent anthropometric, biochemical and hormonal evaluation. All patients underwent OGTT. Subjects were subdivided according to Tanner stage in 269 pre-pubertal (103 F/142 M) and 370 pubertal subjects (204 F/132 M). In pre-pubertal subjects, basal glycaemia was higher in males than females (83.99 ± 7.7 vs 80.94 ± 8.3, $p < 0.05$). Basaline c-peptide (1.54 ± 0.8 vs 1.77 ± 0.8, $p < 0.05$) and insulin at 120' (110.1 ± 115.9 vs 158.3 ± 108.1, $p<0.05$) resulted higher in females. In pubertal subjects, obese males showed higher BMI SDS (3.08 ± 0.98 vs 2.84 ± 0.98, $p < 0.05$), basal C-peptide levels (3.14 ± 0.17 vs 2.34 ± 0.86, $p < 0.05$), triglycerides levels (105.7 ± 57.3 vs 92.32 ± 47.35, $p < 0.05$), AST (29.7 ± 11.5 vs 25.8 ± 11.7, $p < 0.001$) and ALT levels (28.5 ± 17.9 vs 28.1 ± 8.3, $p < 0.001$). Pubertal males and females showed no differences in prevalence of impaired fasting glycaemia (3% vs 3.9%), impaired glucose tolerance (16.6% vs 16%). Pubertal males had a higher prevalence of abnormal HbA1c than females (7.5% vs 3.9%).

Conclusion: In puberty, males show a more severe degree of obesity and a worse metabolic profile than females. A role of androgens could be hypothesized. These results suggest that pubertal obese males need a more intensive management to reduce long-term cardiometabolic risk.

P2.20 POSTERS

Reintroduction of n-3 polyunsaturated fatty acids in adulthood partially reverts deficits established in young life: relevance for depressive-like state in female rats

Maria Bove[1], Luigia Trabace[1]
[1]Department of Clinical and Experimental Medicine, University of Foggia, Foggia, Italy

Depression incidence has reached epidemic proportions during last decades and the prevalence of depressive symptoms in women is almost twice compared to men. Despite this, from a preclinical point of view, animal models resembling depressive-like diseases are mainly performed in males. Therefore, to try to fill this gap, in this study we focused on female gender. It has been reported that dietary habits are crucially involved in mental disorder onset and development. In particular, in utero exposure to unbalanced diet, such as modern western diets, characterized by low fish consumption and more junk food, resulting in n-3 polyunsaturated fatty acids (PUFA) deficiency, is considered to be detrimental for the Central Nervous System functioning. However, it is not fully elucidated yet if central alterations induced by those wrong lifestyles can be reverted with a change in dietary habits. Thus, in the present study, female rats were firstly exposed to n-3 PUFA enriched or n-3 PUFA deficient diet, from the conception until early adulthood. Afterwards, the group of female rats exposed to n-3 PUFA deficiency, was fed with n-3 PUFA enriched diet for 8 weeks, in order to evaluate the effects of n-3 PUFA reintroduction. At both time points, depressive-like behaviour was analysed by using the Forced Swimming test (FST), together with serotonin (5-HT), noradrenaline (NA), Brain Derived Neurotrophic Factor (BDNF) and Nerve Grow Factor (NGF) levels. Our results reported an increase in depressive-like behaviour in early adult female rats lifelong fed with n-3 PUFA deficient diet compared to n-3/n-6 balanced diet. Moreover, n-3 PUFA deficiency prompted a decrease in cortical and amygdalar 5-HT, BDNF and NGF levels and an increase in amygdalar NA content. N-3 PUFA reintroduction was able to reverse depressive-like behaviour in adult females, and such outcome was accompanied by lower amygdalar NA and increased cortical and amygdalar 5-HT. In addition, the switching from n-3 PUFA poor to n-3 PUFA enriched diet did not replenish cortical NGF and BDNF content. Taken together, these data highlight the detrimental effects of poor n-3 PUFA consumption and demonstrate that although n-3 PUFA reintroduction in diet might restore behavioural deficits, such intervention is not able to completely revert the abnormal underlying molecular pathways.

P2.21 POSTERS

The role of androgens in women's health and wellbeing

Elena Bresciani[1], Vittorio Bianchi[2], Laura Rizzi[1], Ramona Meanti[1], Antonio Torsello[1]
[1]Medicine and Surgery, University of Milano Bicocca, Monza, Italy, [2]Department of Endocrinology and Metabolism, Clinical Center Stella Maris, San Marino, San Marino

In women endogenous androgens, including testosterone, dihydrotestosterone (DHT), androstenedione (A), dehydroepiandrosterone (DHEA) and dehydroepiandrosterone sulfate (DHEAS), are synthesized in various tissues including the (i) adrenal glands, (ii) ovaries, (iii) testis, (iv) placenta, (v) brain, and (vi) skin. Androgens are important to maintain the reproductive competency, cardiac health, appropriate bone remodeling and mass retention, muscle tone and mass, and brain function, in part, through their mitigation of neurodegenerative disease effects. Given the pluripotency of endogenous androgens, different exogenous androgens, and selected congeners, were considered in pre-menopausal and post-menopausal women for different pathological settings.

DHEA supplementation significantly increased the numbers of oocytes, fertilization, and the pregnancy rate in women with inadequate ovarian responses. Androgens alleviated vulvovaginal atrophy (VVA) and genitourinary syndrome (GS) and counteracted low libido and sexual dysfunction in menopausal women. Synthetic androgens improved muscle mass and strength as well as bone mineral density (BMD) in older women.

Although the therapy based on androgens and congeners in women is relevant from a clinical point of view, their use is a matter of debate and is very limited owing of different issues: i) the side effects associated to long-term use as hirsutism, acne, deepening of the voice, and weight gain; ii) the number of clinical studies is still limited; iii) the gynecologists and internists do not know precisely the benefit of androgen therapy in women.

For these reasons, further studies on large populations are warranted to better clarify their therapeutic potential.

P2.22 POSTERS

Gender-based evaluation of the effect of mitotane on total cholesterol, HDL, LDL and triglycerides levels in patients with adrenocortical carcinoma

Sarah Allegra[1], Soraya Puglisi[1], Chiara Bonin[1], Francesco Chiara[1], Vittoria Basile[1], Anna Calabrese[1], Giuseppe Reimondo[1], Silvia De Francia[1]

[1]Dept. of Clinical and Biological Sciences, University of Turin, Orbassano, Italy

Mitotane, the reference drug for metastatic adrenocortical carcinoma, has a profound impact on lipid levels, causing a marked increase in total, LDL and HDL cholesterol. This effect is mediated by the stimulation of HMG-COA reductase, leading to an increased cholesterol synthesis. At the same time, lipoprotein profile may influences mitotane distribution: in dyslipidemic patients, high plasma levels have been observed, without reported side effects, highlighting that drug concentratioon in lipoprotein could be the major determinant of its distribution in the other tissues. In addition, mitotane bioavailability depends on different factors, such as gender: sex differences in drug pharmacodynamics and pharmacokinetic, response to treatment and related toxicity have been still reported.

Our aim was the evaluation of the interplay between mitotane pharmacokinetics and treatment-induced dyslipidaemia. Mitotane and its metabolite o,p'-DDE, have been quantified in human plasma and the biologic implication of serum lipoprotein on drug pharmacokinetic and efficacy have been explored considering sex-related differences and menopausal period.

A chromatographic method was used to quantify the drug in plasma collected from adult patients, also considering the active metabolite o,p'-DDE. We observed a different lipid profile between males and females and between pre- and post-menopausal women. Considering mitotane-effect on lipid levels, we observed that higher drug concentrations were correlated to higher HDL in all the considered groups ($p < 0.001$), total cholesterol in male ($p = 0.005$) and female ($p = 0.036$), triglycerides in female ($p = 0.005$) and postmenopausal group ($p = 0.002$) and LDL only in male patients ($p < 0.001$). An increase of o,p'-DDE were positively correlated with HDL levels in all the groups ($p < 0.001$) and a negatively with LDL in all the group (male $p = 0.008$, female and pre- and post-menopausal $p < 0.001$), total cholesterol in female ($p < 0.001$), pre- ($p = 0.016$) and post-menopausal women ($p = 0.01$) and triglycerides in female ($p < 0.001$) and premenopausal patients ($p = 0.005$). This is the first study designed to evaluated gender difference in mitotane-induced dyslipidemia and the results suggest that a gender and personalized approach should be useful to prevent and manage alterations in lipid profile.

P2.23 POSTERS

Atopic dermatitis and gender: the Aretusea experience of dupilumab

Sabrina Regolo[1], Michela Cirillo[2], Manuela Cuconato[3], Maria Gabriella De Silvio[4], Cinzia Fatini[5]

[1]P.O. Umberto I, Giseg Giovani, UOC Pharmacy, Siracusa, Italy, [2] Giseg Giovani, Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy, [3]Giseg Giovani, Italy, [4]ASL Salerno, Salerno, Italy, [5]Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy

Atopic dermatitis (AD) is a common inflammatory skin disease with a significant global disease burden. Several mechanisms underlie AD, such as epidermal barrier dysfunction and immune dysregulation, which have led to innovative systemic treatment options. Other inflammatory disorders, as well as innate and adaptive immune responses, have noted sex differences.

Dupilumab is highly effective in treating AD: it has a peculiar mechanism of action as it modulates the signal's trasduction of IL-4 and IL-6, the main cytokines involved in the pathophysiological process of AD.

Studies have suggested that women overreport symptoms in nondermatologic disease. Gender-dependent differences in patients' perception of dermatologic disease are poorly described. The description of possible gender differences in morbidity in a skin disease with comparable prevalence in men and women may therefore provide relevant data.

The aim of the study was to evaluate the prevalence of AD according to gender, through data analysis of patients enrolled for Dupilumab's treatment at Rizza's Hospital of Syracuse, in the Dermatology Unit.

This single-centre retrospective observational study involved 90 patients (58 males, 32 females) suffering from AD and referred to Rizza's Hospital of Syracuse in the period from March 2019 to September 2021 on-treatment with dupilumab for at least 8 months.

Dupilumab prescriptions were carried out in accordance with the eligibility and prescriptive appropriateness criteria reported in the web-based AIFA Registry.

About AD, women have a mean age lower than men (49.3 yrs vs. 55.1 yrs), with 70.7% of the men and 75% of the women currently in treatment with dupilumab.

When considering the number and the mean age (48.6 yrs vs. 55.6 yrs) of the patients under treatment there are not significant differences between genders.

Seventeen (29.3%) men and 8 (25%) women were lost at follow-up, confirming the good tolerability of dupilumab both in men and women.

The evidences provided by this study confirm that the gender-centred approach may result in a higher effectiveness of diagnosis and therapies, with advantages mainly for people affected by AD, but also for a better sustainability of the National Health Service.

P2.24 POSTERS

Male postpartum depression: the hidden diagnosis

Francesco Monaco[1], Annarita Vignapiano[1], Maria Carla Ferrillo[1], Anna Maria Tridente[1], Martina Castellana[2], Giulio Corrivetti[1]

[1]Department of Mental Health, [2]Department of Gender Medicine, ASL Salerno, Salerno, Italy

Introduction: Many studies have examined the epidemiology, risk factors, treatment, and adverse effects of postpartum depression (PPD) in women; however, the condition is less understood in men [1]. Research examining the mental health of fathers following the birth of a child is a growing area, with good evidence suggesting that it is a significant public health concern. Meta-analytic data indicate approximately 1 in 10 fathers experience postpartum depression with its negative effects on child health and well-being related to cognitive, behavioral, and emotional development. Postnatal depression in men often goes undiagnosed. Major risk factors include a history of depression and anxiety; financial pressures and evidence also shows that not being in a relationship with the child's mother. However, the cause and effect is unclear so these factors might not necessarily be the direct cause of mental health difficulties. Prevention is critical in reducing the negative effects of paternal mental illness. To facilitate the design of effective programs, identifying targetable risk factors is an important step [2]. Health authorities and professionals should pay more attention to the early identification of prenatal and postpartum paternal depression and implement effective treatment.

Methods: This study was performed on 40 couples selected from the mental health department and the maternal-child department of the Azienda Sanitaria Locale Salerno. After collecting anamnestic information and the socio-economic status, couples participating in the study will be administered the Edinburgh Postpartum Depression Scale at childbirth, after 6 and 12 months. Quality-of-life measures will be assessed using a 36 item Short Form health Survey.

Results: Our primary outcome was the evaluation of postpartum depressive symptoms within the first 12 months following childbirth, assessed using either a validated self-report measure such as the Edinburgh Postpartum Depression Scale and their impact on functioning in the real life.

Conclusion: To improve the well-being of the families and optimal outcomes for the neonates, health care providers must assess the mental health and adaptation of all new parents, regardless of gender, and make appropriate referrals as needed.

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P2.25 POSTERS

Focus on iron deficiency: an underestimated problem with a major impact on women's health

Nadia Maria Sposi[1]

[1]Istituto Superiore di Sanità, Biomarkers Unit, Center for Gender-Specific Medicine, Roma, Italy

Iron deficiency (ID) is the most prevalent nutritional deficiency worldwide and is believed to be the main type of malnutrition present in industrialized states. Iron deficiency anemia (IDA) has considerable social relevance as it not only limits growth and learning in the child, but also reduces the adult's ability to work and is often also associated with heart failure, chronic kidney disease and chronic inflammatory diseases. Therefore, its early identification is of considerable importance in order to prevent its complications. According to the World Health Organization estimate, up to 27% of the world's population experience IDA. Subgroups particularly at risk include pre-scholar age children (aged 0-5 years), women of childbearing age, and pregnant women.

Iron deficiency represents a risk factor for maternal and perinatal mortality and directly contributes to cognitive impairment, decreasing work productivity.There are sex differences in iron homeostasis, as women have, on average, lower storage iron compared with man. Classic data from the National Health and Nutrition Examination Survey indicate that 11% of women in reproductive age in the United States experience ID as compared with < 1% of man of the same age. IDA can be considered an example of physiological differences between men and women, as menstruation is a primary cause of poor iron status in women, although inadequate dietary iron uptake, pregnancy, and other factors can also contribute.

An effort to sensitize general practitioners and citizens to not underestimate the severity of iron deficiency anemia would be desirable in the near future. Introducing the request for simple tests such as iron, transferrin saturation and ferritin into the routine clinical analysis would certainly allow for a better prevention, particularly relevant in low– income countries.

P2.26 POSTERS

Integrating gender specific-care in university hospitals in Italy - A pilot project

Tiziana Vavala[1], Gitana Scozzari[2], Ida Raciti[3], Libero Ciuffreda[1], Antonio Scarmozzino[3]

[1]Department of Oncology, SC Oncology 1, [3]Clinical Risk Management Unit, AOU Città della Salute e della Scienza di Torino, Turin, Italy, [2] Hospital Medical Direction, AOU Città della Salute e della Scienza di Torino, Ospedale Molinette, ,Turin, Italy

Background: According to literature data, healthy men typically live two to four years less than women, but women experience a higher burden of multiple morbidities. Biological features, particularly sex, greatly influence any disease at an epidemiological, clinical and molecular level, potentially affecting incidence, disease evolution and treatments effects. In the last years biomedical approaches were characterized by a strong androcentric orientation. Male sex prevailed in preclinical studies with animal models and also in clinical trials inducing relevant bias on results transposition in the real-life clinical practice. For this reason, in order to integrate a sex and gender healthcare approach in academic hospitals, a pilot project has been defined by University Hospital Città della Salute e della Scienza di Torino, the largest tertiary care Public Utility in NorthWestern Italy.

Methods: A network of experts is planned to be recruited within the Hospital wards and services; small and interactive working groups coordinated by experts on Gender Medicine will be then created, involving. Medical doctors, epidemiologists, biologists, pharmacologists, nurses, members of the Regional Government and patient associations. Furthermore, scientific societies and pharmaceutical companies will be engaged, and social and scientific communications will be planned. Qualitative and /or quantitative indicators will be defined to analyse the impact of gender differences starting from the first patient access until the final discharge, specifically defining principal diseases inducing Hospital admissions and Hospitalization times. The aim of the project is to work in a multidisciplinary way to ensure a progressive integration of sex and gender specific care both in the clinical practice and in the planning of preclinical and clinical studies.

Conclusions: The impact of sex and gender approaches in public health fields is still at an early stage, with concerns and delays due to their intrinsic complexity. However, if part of these objectives will be accomplished, this will significantly improve global health at any age for both men and women, cutting down health care costs for the Public Health Systems.

P2.27 POSTERS

A gender equity assessment tool for prevention plan of Italian Regions: a pilot study

Virginia Casigliani[1;2], Aurelia Salussolia[2;3], Giusy La Fauci[2;3], Giorgia Soldà[2;3], Alessandro Berti[2;4], Ester Bonanno[2;5], Veronica Gallinoro[2;6], Clara Mazza[2;7], Francesca Grosso[2;4]

[1]University of Pisa, Pisa, Italy, [2]Consulta degli Specializzandi in Igiene e Medicina Preventiva - SItI, [3]University of Bologna, Bologna, Italy, [4]University of Milan, Milan, Italy, [5]University of Perugia, Perugia, Italy, [6]University of Florence, Florence, Italy, [7]University of Pavia, Pavia, Italy

Introduction: Gender is widely recognized as a determinant of health. The World Health Organization (WHO) recommends considering the biological, socioeconomic, and cultural effects that sex and gender have on health in health planning. According to the Prevention National Plan, each Italian region develops its own Regional Prevention Plan (RPP), which serves as the main planning tool for prevention and health promotion interventions. All RPPs have 10 mandatory programs that focus on specific Public Health areas (e.g. workplaces health promotion). Each program presents a context analysis, objectives, actions, and a set of indicators for each action. The study aimed to develop a Gender Equity assessment tool for the 10 RPPs programs, to both evaluate how gender was included in the plans and raise awareness for the future implementation of RPPs.

Materials and Methods: A narrative synthesis of existing literature on the assessment and evaluation of health policies was performed. As a result, the WHO "Checklist for assessing the gender responsiveness of sexual and reproductive health policies" was chosen as the main reference. The adapted Gender Equity assessment tool investigated 5 domains analysing the integration of gender in the context, the objectives, the actions, the expected impact, and the monitoring indicators of the plans. The presence of the intersectionality of the gender with the other determinants of health (e.g. ethnicity) was evaluated as well.

Results: A pilot analysis of the RPP of the Region Emilia-Romagna (ERR) was performed. According to the analysis, gender was included in the context analysis in 7 of 10 programs, in the objectives in 2 of 10, in the actions in 3 of 10, and among the monitoring indicators in 2 of 10. Gender was detected only in one program in the expected impact of the actions, while no programs considered the influence of gender on the access to the service.

Conclusions: In the ERR plan, there is no distinction between sex and gender. The sex dimension was mainly included in the context analysis, with data disaggregated by sex used to describe the current situation, while sex or gender were rarely considered in the objectives and actions sections. From this pilot analysis, it emerged that gender must be given greater attention to account for its potential impact on health policy outcomes.

P2.28 POSTERS

Gender related aspects of patient blood managment

Maria Gabriella De Silvio[1], Maria Ludovica Genna[2], Gesualda Laporta[3], Lucia De Rosa[4], Giuseppe Mascia[4], Flora Ascione[5], Maria Criscuoli[4], Maria Rosaria De Pascale[4]

[1]ASL Salerno, District n. 70, Nocera inferiore, Italy, [2]Gender Medicine Referent, Immunoematology and Transfusion Medicine, Biologic Qualification Centre, [3]Gender Medicine Coordinator, CdL School of Nursing Director, [4]Immunoematology and Transfusion Medicine, [5]Healthcare Management, Cardarelli Hospital, Naples, Italy

Patient blood management describes an evidence-based approach to manage the patients who might need allogenic transfusion teraphy. This strategy is achieved by the optimization of patients red blood cell mass, the reduction of blood loss and bleeding and trought the optimization of the patient's physiological tolerance toward anemia.

Increasing evidence confirm that liberal rather than restrictive transfusion practices are drivers of adverse clinical outcomes and have been independently associated with morbidity and mortality and economic costs.

Preoperative anemia is most commonly caused by functional iron deficiency and should be treated with oral iron, intravenous iron, and/or recombinant erythropoietin. Compared with men, women show very high prevalence of anemia, historically. Characterization of the current practice of PBM in a modern hospital is critical to facilitate the benchmarking of performance.

In the Azienda Ospedaliera A.O.R.N. Cardarelli (Naples) since March 23, 2022 were enrolled 30 patients in preoperative setting with transferrin saturation (TSAT) < 20%, hemoglobin rate < 13 g/dl (male) and < 12 g/dl (female) afferred to the urology, general surgery, gynecology, neurosurgery and orthopedics department.

After the vital parameters assessment patients (20 female and 10male, age range 20 to 70 years) were treated. They received ferric carboxymaltose(FCM) trought one or two infusion accordly with the patient hemoglobin rate and the weight. They repeated haemochrome, sideremia, TSAT% after a month.

A male pazient referred gastrointestinal symptoms after the infusion , a female patient referred vision disturbance. 2 patient referred beneficial effects in heavy menstrual bleeding, 15 patients (10 female, 5 male) referred a diminuishig astenia after a week from FCM infusion. The iron control after 20 days showed a median raise of 1,2 g of hemoglobin in female and 1,8 g in male patients. No patient was transfused during chirurgical setting. In our experience preoperative anemia is present twice in female patients and women show lower hemoglobin rise. Altought the limited number of enrolled patients, the use of FCM in the preoperative setting has been shown safe and a effective strategy to prevent allogenic transfusions.

P2.29 POSTERS

Variance of biophotonic emission by the iris in gender medicine (pilot study)

Daniele Lo Rito[1], Daniele Gullà

[1]MMG, Oriago di Mira, Italy

We took into consideration a group of 20 patients, of which 10 women and 10 men, and we subjected them to the basal registration of their irises with a camera suitable for the evaluation of the variance of the biophotonic emission of the iris. We used the Mira certified camera, designed by Daniele Gullà. The primary end point was to observe whether there is a difference in biophotonic emission between the female and male gender at time zero (basal time). The images can be analyzed with artificial intelligence (AI) to verify further gender differences. We also verified whether there is a difference in biophotonic emission based on the iridological characteristics, such as the constitution, the disposition, the diathesis, the myosis, the mydriasis, the enlarged and narrow crown. Finally, we will present clinical cases of variance in iris biophotonic emission at time T0 (baseline) and after therapeutic stimulus at time T1, in order to evaluate the differences in biophotonic emission as a possible index of post-therapeutic physical improvement (verification of efficacy therapy undertaken).

P2.30 POSTERS

Aggressiveness in bipolar disorder: when gender differences mismatch common thinking

Elena Manfredi[1], Francesco Attanasio[1], Valentina Fazio[1], Federica Mazzi[1], Melania Maccario[1], Matteo Carminati[1], Cristina Colombo[1,2], Raffaella Zanardi[1,2]

[1]Department of Clinical Neurosciences, University Vita-Salute San Raffaele, Milan, Italy, [2]Department of Clinical Neurosciences, IRCCS San Raffaele Scientific Institute, Mood Disorder Unit, Milan, Italy

Aims: Violence, historically mainly attributed to male perpetrators, is a critical topic of prejudice in psychiatry, although a definite association between violence and mental illness is so far inconsistent. Pondering the social stigma of our patients, we innovatively explored aggressivity as a spectrum, from openly violent acts to lower grades as irritability, in a sample of male and female bipolar inpatients.

Methods: Over a 12-month period, we recruited 151 consecutively admitted Bipolar Disorder inpatients. We studied their psychiatric and psychological morbidity; we inquired lifetime and intra-episode hetero- or self–aggressive behaviours, irritability, suicide attempts, alcohol or substance abuse.

Results: Genders behaved differently in aggressiveness

as a spectrum during inter-critic periods (F 4.12%, M 14.82%, p = 0.020). Pure violent acts were 5-fold more prevalent in males in euthymia (F 1.03%, M 5.56%, p = 0.093), similar to rates in the general population. In acute phase there is an increase in aggressivity in both genders, with similar percentages (F 39,18%, M 31,48%, p = 0.346), but stratifying for actually violent behaviour, excluding bland irritability or verbal aggressions, rates were lower in both gender and without a statistical difference (F 12.37%, M 11.11%, p = 0.819). Interestingly, alcohol and/or substance abuse correlate with inter-critic aggressivity only in males (p = 0.002).

Conclusions: Studying aggressive behaviours in a population with a diagnosis of bipolar disorder it was possible to observe how the rare episodes of aggressiveness were mainly condensed in the active phases of the illness, without differences between males and females. Those aggressive behaviours were mainly displayed as agitation, irritability and verbal aggressivity, feeding the stigma while the actual percentage of violence was much lower. During long periods of wellbeing, violent acts appeared in line with those of the general population, mainly perpetrated by males and highly related to alcohol and substance abuse.

We are confident our data might help tear down the stigma that psychiatric diagnosis equals violence and help unload our patients of such a burden in their everyday life.

P2.31 POSTERS

Women experience. A Greater burden of illness compared to men with similar levels of hidradenitis suppurativa severity

Tonia Samela[1;2], Anna Dattolo[2], Giorgia Cordella[1], Valeria Antinone[1], Simona Mastroeni[2], Roberta Fusari[2], Luca Fania[3], Damiano Abeni[2]

[1]Clinical Psychology Unit, [2]Clinical Epidemiology Unit, [3]Dermatology Unit, Istituto Dermopatico dell'Immacolata IDI-IRCCS, Rome, Italy

Background: Hidradenitis suppurativa is a severe disease which poses a great burden of illness on patients.

Objectives: To verify whether similar levels of clinical disease severity have the same "meaning" among men and women, in terms of quality of life impairment and psychosocial burden.

Methods: A cross-sectional study was conducted on consecutive patients from December 9, 2015 to end-2020. Clinical disease severity was measured using the International Hidradenitis Suppurativa Severity Score (IHS4). Burden of illness was assessed using the Skindex-17, the Dermatology Life Quality Index (DLQI), and the 12-item General Health Questionnaire (GHQ-12). We computed "illness/disease" ratios, to answer the question: "how much impairment, in terms of illness, is caused by each incremental point of the clinical disease severity score?". For each patient, the patient-reported measures (PRM) were divided by the IHS4 score. For this purpose, IHS4 = 0 was recoded as 1. This procedure has been performed separately for both sexes, and was also repeated on all the single items of the PRM.

Results: A total of 452 patients were recruited: 273 women (60.4%) and 179 men. Correlations between the PRM and the IHS4 were scarce or modest, in the range of 0.14-0.34. The means of the patient-reported measures/IHS4 ratios were all significantly higher in women than in men: Skindex-17 symptoms/IHS4, 12.80 vs. 7.84 (p = 0.002); Skindex-17 psychosocial/IHS4, 11.44 vs. 4.96 (p < 0.001); DLQI/IHS4, 2.35 vs. 1.14 (p < 0.001); GHQ-12, 3.58 vs. 1.90 (p < 0.001). This pattern was invariably seen for all single items of all PRM.

Conclusions: The IHS4 does not have the same "meaning" for men and women in terms of individual, subjective suffering, as measured by a range of PRM. While these results should be confirmed in other settings, cultures, and possibly in other chronic skin conditions, it could now be hypothesized that different cut-offs for clinical severity of HS may be warranted for men and women.

P2.32 POSTERS

Gender differences in emotions and feelings at diagnosis in patients with bullous diseases

Francesca Sampogna[1], Silvia Battisti[2], Chiara Scarpulla[2], Valentina Battisti[2], Federica Cosenza[2], Carola Pulvirenti[2], Giuseppe Formato[2], Damiano Abeni[1]

[1]IDI-IRCCS, Clinical Epidemiology Unit, Rome, Italy, [2]ANPPI Associazione Nazionale Pemfigo Pemfigoide Italy, Rome, Italy

Autoimmune bullous diseases are a group of blistering rare disorders involving the skin and/or mucous membranes. They impose an elevated burden on patients' physical and emotional status, and morbidity and mortality are elevated. The moment of the diagnosis of a life-threatening disease is an emotional time for the patient. The aim of our study was to investigate the prevalence of different emotions and feelings at diagnosis in patients with bullous diseases, in relation to gender. Data were collected through an online questionnaire. Among several questions concerning psychological issues, it was asked which emotions the patient experienced at the time of the diagnosis among isolation, anger, confusion, sadness, despair, disregard, fear, avoidance, or challenge. Also, the patient reported to whom she/he talked as soon as she/he had the diagnosis.

The study population consisted of 105 patients, with 63.8% of women. The emotion most frequently experienced at diagnosis was confusion (47.6% of patients). More than 30% of patients reported having experienced sadness and fear, 12.5% anger, and 10.5% despair. A lower prevalence was observed for isolation, disregard, avoidance and challenge. A significantly higher percentage of women than men experienced isolation (10.4% vs 0.0% p = 0.038) and despair (14.9% vs

2.6%, p = 0.043), and sadness was close to significance (37.3% of women vs 21.1% of men, p = 0.064).

When receiving the diagnosis, patients often talked with the partner (57.1%) or with the physician (39.0%), and less frequently with a relative or a friend. Men talked about the diagnosis with their partner more often (76.3%) than women (46.3%), while women tended to talk more with a relative or the physician.

The observed differences may be due to different factors. For example, isolation may be associated to stigma, and in general women experience significantly greater level of internalized stigma than men. The empirical evidence on gender differences in emotional responding is mixed. It is possible that there are differences between men and women in emotion regulation. Very likely, emotional responses are a joint function of initial emotional reactivity and ongoing emotion regulation. To our knowledge, this is the first study investigating gender differences in emotions at diagnosis in patients with bullous diseases.

P2.33 POSTERS

Sex and gender differences in depressive symptoms in a multi-ethnic population: the HELIUS study

Bryn Hummel[1], Sharon Stobbelaar[2], Paula Mommersteeg[3], Henrike Galenkamp[1], Anja Lok[4], Irene van Valkengoed[1]

[1]Department of Public and Occupational Health, Amsterdam Public Health Research Institute, Amsterdam UMC, University of Amsterdam, Amsterdam, The Netherlands, [2]Department of Neurology, Gelre Ziekenhuizen, Apeldoorn, The Netherlands, [3]Department of Medical and Clinical Psychology, Center of Research on Psychological Disorders and Somatic diseases (CoRPS), Tilburg University, Tilburg, The Netherlands, [4]Department of Psychiatry, Amsterdam UMC, University of Amsterdam, The Netherlands

Background: Differences between women and men in the prevalence of depression have been documented in ethnic majority and minority groups. Understanding characteristics associated with depressive symptoms across ethnic groups may aid in prevention and reduce the societal burden of depression. Whether gender-related characteristics are associated with the prevalence of depressive symptoms in women and men within different ethnic groups has not been studied. Hence, we explored associations between four gender-related characteristics and depressive symptoms, across ethnic groups.

Methods: We used baseline data of 23.031 women and men of Dutch, South-Asian Surinamese, African Surinamese, Ghanaian, Turkish or Moroccan origin, aged 18-70 years, from the Healthy Life in an Urban Setting study (HELIUS; 2011-2015). Through multiple linear regression analyses, we studied associations between the gender-related characteristics (time spent on household work, primary earner status, employment status, and working in a male- or female-dominated occupation), and depressive symptoms, measured through the Patient Health Questionnaire (PHQ-9), and log-transformed for analysis. Analyses were stratified by sex, and subsequently by ethnicity, and adjusted for age, ethnicity, socioeconomic status and household composition.

Results: Overall and across ethnic groups, women reported more depressive symptoms than men (overall median 4 [interquartile range (IQR) 6] versus 2 [IQR 6], respectively). Several gender-related characteristics were associated with more depressive symptoms: in particular part-time work in women (+3% higher PHQ-9 score) and men (+4%), being a fulltime homemaker (+5%), more time spent on household work (+2%), and being the primary earner (+9%) in women, and working in a female-dominated occupation (+6%) in men. Associations were largely similar across ethnic groups.

Conclusion: While patterns of associations varied by sex, gender-related characteristics were associated with depressive symptoms in women and men across ethnic groups.

P2.34 POSTERS

Women in exercise and sport research and publication: a quantitative and qualitative exploration of the gender gap

Suzanne Ryder[1], Giovanni Piva[2], Anna Crepaldi[3], Sofia Straudi[1], Nicola Lamberti[1], Fabio Manfredini[1]

[1]Department of Neuroscience and Rehabilitation, [2]Department of Humanities, University of Ferrara, Ferrara, Italy, [3]Instituto Maimonides de Investigation Biomedica, Cordoba, Spain

Background: Women scholars have a lower representation in high-impact journals in the medical fields, including in sport sciences. We studied the representation of women authorship in exercise and sport research by evaluating women's positions in publications reporting of randomized controlled trials (RCTs) published in the last 5 years.

Methods: On April 1st 2022, we searched the Medline dataset for RCTs published from April 2017 to March 2022, using the inclusive MeSH term "Exercise therapy". We identified the gender of first and last authors for the extracted trials. This identification happened through photographs and pronouns on Researchgate or institutional profiles. When the gender of an author could not be identified, the trial was excluded from the analysis. The Country of the first author and the quartile of the Journal were also determined, according to the Journal Citation Reports platform.

Results: 5504 articles were extracted, and 254 were excluded due to the inability to establish the authors' gender, leaving 5250 for analysis. The average proportions of first and senior authorship by women was 47% and 33%. Women as both first and last author

accounted for 21%. The percentage of authorship by women remains consistent from 2018 to 2021 (first: 45% 49% 46% 45% p for trend = 0.34 - Last: 32% 34% 36% 32% p for trend = 0.99). No differences were observed between the Continents for women first authors (ranging from 53% in Oceania to 43% in Asia) except for Africa with a significantly lower percentage (32%; p = 0.012). Further data analyses will include medical areas, Countries, and quartile of the journals to indicate a consistency or disruption of our findings. Qualitative interviews with women scholars in the field of exercise and sport research will explore the social mechanisms underlying these findings.

Conclusions: Women are almost equally represented in first authorship in exercise and sport research, consistently throughout the last years. These findings show greater value of women authorship than in other medical fields. Differences with previous observations may be explained by our inclusion of all journals indexed in PubMed and sport and rehabilitation across different morbid conditions. Nonetheless, women's representation is lower in senior authorship which suggests that a gender hierarchy exists.

P2.35 POSTERS

Measuring psychological wellbeing in women and men with skin conditions

Tonia Samela[1;2], Giorgia Cordella[2], Valeria Antinone[2], Paride Sarandrea[3], Damiano Abeni[1]

[1]Clinical Epidemiology Unit, [2]Clinical Psychology Unit, [3]Dermatology Unit, Istituto Dermopatico dell'Immacolata IDI-IRCCS, Rome, Italy

Background: The psychological impact of skin diseases has been well described. However, it has often been studied either with generic instruments (such as the General Health Questionnaire) or with questionnaires dealing with specific conditions (e.g., depression, anxiety).

Objectives: To use for the first time in a dermatological setting a short and versatile questionnaire to investigate the psychological impact of skin conditions, and the specific differences between women and men.

Materials and Methods: Patients were recruited from October 2021 to May 10, 2022 in the dermatological reference center IDI-IRCCS, Rome, Italy. The Symptom-checklist-K-9 (SCL-K-9) self-report questionnaire includes items that measure: 1. Hostility; 2. Obsessive-compulsive disorder symptoms; 3. Depression; 4. Interpersonal sensitivity; 5. Paranoia; 6. Anxiety; 7. Somatization; 8. Phobic anxiety; 9. Psychoticism. It was administered by trained psychologists. Higher scores denote a worse condition.

Results: A total of 292 patients completed the SCL-K-9 (208 women, 71.2%). The total score, i.e., 0.79, was in line with values previously reported for other patient population. However, a highly significant difference was observed between women (0.88) and men (0.56, p-value < 0.001). When looking at the different domains, women had consistently higher scores than men on all items. Such differences reached statistical significance for items 2, 3, 4, 6, 7.

Conclusions: The SCL-K-9 is well accepted by dermatological patients, and it allows to highlight important differences between women and men in impact of skin conditions on several important psychological domains.

P2.36 POSTERS

Gender-specific differences in dealing with cancer

Anahita Paula Rassoulian[1]

[1]Department of Psychoanalysis and Psychotherapy, Medical University of Vienna, Vienna, Austria

Fears and worries are typical women's things, real men don't show feelings- do these and similar prejudices still exist today? It is well known that men and women differ in challenging situations. Despite medical progress, cancer is still a life-threatening disease and shakes the whole life fundament of a person. The consequences of cancer are not gender specific, but what about dealing with them?

Do men and women use different strategies to cope with cancer? What is different between men's and women´s search for hope and comfort? What helps in times of suffering? And how does it influence their personal life and relationships?

Interviews with male and female cancer patients show a clear tendency towards gender differences in coping with cancer.

The results do not support any stereotypes of male and female behavior or social structures—but rather reflect the real life of human beings.

P2.37 POSTERS

"Care" in complementary and alternative medicine and gender studies

Aline Sigrist [1], Elodie Richardet [1]

[1]Unisanté , Unité Santé et Genre, DFRI, Lausanne, Switzerland

Introduction: Complementary and alternative medicine (CAM) have gained popularity in the West since the 1960s.The (re)emergence of CAM in recent decades is largely a response to the dominant position taken by biomedicine in a challenge to its social, economic, and ideological hegemony in the health field. Studies have identified that CAM users were mainly women. Likewise, CAM have particularly developed in female-dominated professions such as nursing and midwifery.

This orientation towards CAM has been associated with a presumed female interest in care treatments but also because of new opportunities in professional occupations like autonomy. Nevertheless, while CAM are increasingly popular with individuals, their (institutional) status and practices remain subordinate to biomedicine.

Methods: This presentation focuses on preliminary results from ongoing health anthropology research exploring individual motivations for turning to CAM based on qualitative interviews and observations with patients and health care professionals. We reflect on dichotomies in CAM studies that reflect gender dichotomies around the notion of "care". We question to what extent the perception of CAM as more subjective, emotional, or even feminine practices contributes to their delegitimization.

Results: Our research indicates that patients - regardless of their first encounters with CAM –find in these practices a more attentive (caring) approach to their person and their illness, which they contrast with the curative orientation of biomedicine. CAM practitioners largely explain that their practice allows them to develop a personal relationship with patients which makes it more meaningful, especially because they can take care of the patient. Especially, nurses seem to turn to CAM practice after facing a professional crisis due to the evolution of their profession. While they have acquired professional status, they express a loss of meaning in their work, as they find themselves managing technical care rather than patient care. Similarly, CAM practitioners are often concerned that the institutionalization of their practice tends to reduce the possibility of doing "care".

How do these reflections on the place of care in the healthcare system, from the perspective of gender and CAM studies, inform health issues?

P2.38 POSTERS

Gender specific health differences in family caregivers with high level of care burden: a pilot study

Marina Petrini[1], Marta Borgi[2], Flavia Chiarotti[2], Antonio D'Amore[1], Aldina Venerosi[2], Francesca Cirulli[2], Daniele Cordella[3], Roberta Masella[1], Elena Ortona[1], Alessandra Carè[1]

[1]Reference Center for Gender Medicine, [2]Center of Behavioral Science and Mental Health, [3]IT Service, Italian National Institute of Health-Rome, Italy

Family caregivers (fCs) are the unpaid persons who take care of not self-sufficient family members. Stress linked to caregiving can be associated with mood and general health modifications in a gender specific way.

Our observational survey describes socio-demographic, psychological, and physical health data, collected in two populations: fCs of relatives with dementia or Alzheimer's Disease (AD) and fCs of relatives with Autism Spectrum Disorder (ASD). Both groups are characterized by similar high levels of care burden, even if they usually differ for age class, kinship with the care recipient and care lasting time.

Data analyses aim at describing stress, depression and burden profiles in addition to subjective physical health in fCs, as well as determining gender differences and peculiar health-related characteristics of the two fCs groups. Preliminary data have been obtained from 176 online questionnaires, completed by fCs from the Italian Lazio region, of whom 79% are women and 21% men, 62% from the ASD group and 38% from the AD group.

Results indicate that fCs of the AD group show stress perception higher than ASD and that females show stress scores significantly higher than men, the difference being greater in the ASD group. Moreover, females show higher depression scores, as well as more physical ailments and lower subjective physical health respect to males. In both groups, women also declare to have more psychiatric symptoms than men. A worse situation for females was suggested also by the higher daily medication consumption, while males have more disease exemptions and certified disability than female fCs. Interestingly, among females, those in the ASD group report more cardiac, immunological and neoplastic disorders than those in the AD group.

This pilot study represents the basis for extending the experimental design to a larger population.

Ultimately, we believe that the information obtained might be useful to inform regional policies in planning health prevention programs dedicated to fCs, considering the evidence-based results of the impact of caregiving on physical and mental health and paying also attention to the possible gender differences.

P2.39 POSTERS

Eating disorder symptoms as a risk factor for hypoactive sexual desire disorder in women: a pilot-study

Elisa Maseroli[1], Sarah Cipriani[1], Linda Vignozzi[1]

[1]Andrology, Women's Endocrinology and Gender Incongruence Unit, Careggi University Hospital, Florence, Italy

Objectives: To investigate the relationship between female sexual dysfunction (FSD) and eating disorders (EDs).

Methods: 123 retrospectively recruited women consulting for FSD underwent physical examination and completed the following validated questionnaires: Female Sexual Function Index (FSFI), Female Sexual Distress Scale-Revised (FSDS-R), Eating Disorder Examination Questionnaire (EDE-Q), Binge Eating Scale (BES), Emotional Eating Scale (EES), Barrat Impulsiveness Scale-11 (BIS-11), Beck Depression Inventory (BDI), State-Trait Anxiety Inventory Y (STAI Y), Symptom Checklist 90-Revised (SCL-90-R), Body Uneasiness Test (BUT), Dyadic Adjustment Scale (DAS) and Sexual Inhibition/Sexual Excitation Scales (SIS/SES). Moreover, demographic, medical and psycho-sexuological data

were obtained through a structured interview.

Results: when we stratified our patients according to the clinical diagnosis of Hypoactive Sexual Desire Disorder (HSDD), we found that those with HSDD showed a worst psychological profile than those without, in particular a higher score at EDE-Q and BDI (all $p < 0.05$). To further verify the impact of the different psychopathological aspects on the risk of having HSDD, we found that the only questionnaires scores that contributed to this dysfunction were EDE-Q (OR 1.678, IC [1.164-2.421]; $p = 0.006$), total BDI (OR 1.055, IC [1.006-1.107]; $p = 0.027$) and SIS1 (OR 1.101, IC [1.109-1.190]; $p = 0.015$), after adjustment for age. After simultaneous analysis in a multivariate model of the three questionnaires, we found that both a higher EDE-Q score and a higher SIS1 score were significant risk factors for HSDD ($p = 0.007$ and $p = 0.034$, respectively). Finally, we observed a significant positive association between frequency of BE and sexual distress, as assessed by FSDS-R total score.

Conclusions: In a population of women affected by FSD, ED traits could negatively affect sexual desire, representing a relevant risk factor for the clinical diagnosis of HSDD. In a clinical perspective, it would worth to investigate the relative change in FSD and ED after treatment for ED and vice versa.

P2.40 POSTERS

Well-being and health of transgender people: a national survey on training needs for general practitioners

Angela Ruocco[1], Luciana Giordani[1], Luisa Brogonzoli[2], Rosa Pedale[3], Maurizio Cancian[3], Ignazio Grattagliano[3], Claudio Cricelli[3], Rosaria Iardino[2], Matteo Marconi[1], Marina Pierdominici[1]

[1]Italian National Institute of Health, Reference Center for Gender Medicine, Rome, Italy, [2]The Bridge Foundation, Milan, Italy, [3]Italian College of General Practitioners and Primary Care, Florence, Italy

Transgender is an umbrella term that refers to people whose gender identity differs from the sex assigned at birth. This condition is also defined as 'gender incongruence'. In some cases, gender incongruence is associated with deep suffering, anxiety, depression and/or impaired functioning in social, occupational or other important areas. For these reasons, some transgender people intervene on their body through a medical gender affirming pathway that includes different stages, such as hormonal and / or surgical treatments, in order to match physical characteristics with identified gender. According to international recommendations, this process involves a multidisciplinary team, where general practitioners represent the first contact for the individual.

International data underline that the lack of knowledge on transgender well-being and health, as well as the use of inappropriate terminology by health professionals, represent the main obstacles encountered by transgender people. Furthermore, most of the transgender associations report that transgender people suffer discrimination in accessing health services. Therefore, transgender people often decide not to contact health services (or leave them after the first access), sometimes resorting to self-administration of drugs, particularly sex hormones, without adequate medical checks. On the other hand, health care to transgender people requires specific skills which are not provided by training courses.

The Reference Center for Gender Medicine (Italian National Institute of Health) in collaboration with The Bridge Foundation and the Italian College of General Practitioners and Primary Care, has launched a national survey aimed at assessing general practitioners' degree of knowledge on well-being and health of transgender people, carried out through an anonymous questionnaire. The results obtained will be analyzed with the purpose of investigating general practitioners' training needs in order to plan specific training courses.

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P2.41 POSTERS

Health status of the adult Italian transgender population: a preview of lifestyle and nutritional habits

Maria Teresa Pagano[1], Camilla Cittadini[1], Lucrezia Gambardella[1], Luciana Giordani[1], Matteo Marconi[1], Paola Matarrese[1], Flavia Chiarotti[1], Angela Ruocco[1], Stefania Bonadonna[2], Francesco Lombardo[3], Cristina Meriggiola[4], Maddalena Mosconi[5], Giovanna Motta[6], Alessandro Oppo[7], Jiska Ristori[8], Alessandra Daphne Fisher[8], Marina Pierdominici[1], Carmela Santangelo[1]

[1]Center for Gender Medicine, Italian National Institute of Health, Rome, Italy, [2]Italian Auxological Institute, Milan, Italy, [3]Sapienza University of Rome, Rome, Italy, [4]S. Orsola-Malpighi University Hospital, Bologna, Italy, [5]S. Camillo-Forlanini Hospital, Rome, Italy, [6]University of Turin, Turin, Italy, [7]University of Cagliari, Cagliari, Italy, [8]Careggi University Hospital, Florence, Italy

Transgender persons suffer from numerous health disparities including difficult access to quality care due to several factors such as poor knowledge about transgender health needs. The Reference Center for Gender Medicine at the Italian National Institute of Health, in collaboration with other public health institutes and transgender communities recently carried out a cross sectional study aimed to investigate the health status of the adult transgender population in Italy in order to provide useful data for a more inclusive health planning. The study consisted of an electronic questionnaire, filled out anonymously, partially by respondents and partially by health care providers, through the use of codes. 961 subjects were enrolled (mean age ± SD, 30 years ± 11): 335 Assigned Males

at Birth (AMAB) transgender people and 626 Assigned Females at Birth (AFAB) transgender people. To date, neither dietary habit assessment nor guidelines exist regarding nutritional recommendations for transgender persons. Here, we report preliminary data related to life style and nutritional habits of transgender people, and compared them with general Italian population men and women (data from the Italian National Institute of Statistics). We observed that both AMAB and AFAB transgender people drink more milk, eat more fruit and vegetable, and eat less fish, than the general population. Interestingly, although the percentage of both AMAB and AFAB transgender people who eat 2-3 servings of red meat/week is lower than the general population, the percentage of subjects eating more than 3 servings of red meat/week is significantly higher in AFAB than in AMAB transgender people. The percentage of transgender people who do not practice any physical activity is higher than in the general population. Body mass index (BMI) of both AMAB and AFAB transgender people differs from the BMI of the general population; specifically, the proportion of AMAB transgender people with BMI < 18.5 and of AFAB transgender people with BMI ≥ 30 are higher than the general population. More studies are needed to provide appropriate nutritional care to the transgender individuals.

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P2.42 POSTERS

Psychological wellbeing and perceived social acceptance in gender diverse individuals

Alessia Romani[1], Francesca Mazzoli[1], Jiska Ristori[1], Carlotta Cocchetti[1], Emanuele Cassioli[2], Giovanni Castellini[2], Maddalena Mosconi[3], Cristina Meriggiola[4], Sara Gualdi[5], Guido Giovanardi[6], Vittorio Lingiardi[6], Mario Maggi[7], Linda Vignozzi[1], Alessandra Daphne Fisher[1]

[1]Andrology, Women's Endocrinology and Gender Incongruence Unit, Florence University Hospital, University of Florence, Florence, Italy, [2]Psychiatry Unit, Department of Neurological and Psychiatric Sciences, University of Florence, Florence, Italy, [3]Azienda Ospedaliera San Camillo Forlanini, Rome, Italy, [4]Faculty of Medicine, University of Bologna, Bologna, Italy, [5]Faculty of Medicine, University of Florence, Florence, Italy, [6]Department of Dynamic and Clinical Psychology, Faculty of Medicine and Psychology, Sapienza University of Rome, Italy, [7]Department of Experimental, Clinical and Biomedical Sciences, Careggi University Hospital, Italy

Gender diverse people identify as neither (exclusively) male nor female.

The present study evaluated the possible differences in terms of psychological wellbeing between binary and gender diverse individuals, as well as the role of perceived social acceptance and religious fundamentalism as possible mediators of psychopathology in gender diverse people. Furthermore, the diversity of gender-affirming hormonal treatment requests according to gender identification was investigated.

563 transgender people (n = 264 assigned female at birth, AFAB and n = 299 assigned male at birth, AMAB) aged 18–70 referring to several Italian gender clinics were enrolled. A subdivision of the study population based on the gender identity visual analog scale (GI-VAS) median was performed, in order to distinguish between gender diverse and binary transgender individuals. Moreover, a linear regression analysis was performed entering logarithmically transformed GI-VAS (Log GI-VAS) into the models with psychometric scales.

Psychometric and sociodemographic data, as well as information regarding requests for gender affirming treatments, were extrapolated from the clinical interviews performed during the first referral.

Gender diverse individuals showed significantly less intense gender dysphoria and higher levels of depression and anxiety compared to binary ones; accordingly, a less binary gender identity correlated with higher levels of depression and anxiety and lower levels of gender dysphoria. The depressive symptomatology in gender diverse people was partially mediated by perceived discrimination and humiliation. Moreover, gender diverse AMAB people sought a non-standard hormonal treatment more often than their binary counterpart.

This study highlights the importance of evaluating each individual's unique health care needs, exploring each single request and its underlying reasons. Indeed, transgender health professionals, when planning gender-affirming hormonal treatments, should offer flexible interventions, tailored on the patient's needs and goals.

P2.43 POSTERS

Development of animal models as tools for risk assessment of transgender people: preliminary results

Roberta Tassinari[1], Alessia Tammaro[1], Gabriele Lori[1,2], Andrea Martinlli[3], Luigia Cangemi[3], Paolo Frassanito[3], Flavio Torriani[3], Francesca Maranghi[1]

[1]Centre for Gender-specific Medicine, Gender-Specific Prevention and Health Unit, Italian National Institute of Health, Rome, Italy, [2]Università Degli Studi di Roma Tre, Science Department, Rome, Italy, [3]Italian National Institute of Health, Experimental Animal Welfare Sector, Rome, Italy

Transgender people (TG) often undergo gender-affirming hormone therapy (HT) throughout their life: masculinizing HT involves testosterone (T) treatment and for TG women estrogen (E) + androgen lowering drugs. Scarce data on the impact of HT on reproduction and its potential long-lasting effects are available. In addition, TG are exposed to contaminants as Endocrine

Disrupters which share targets/mode of action with HT, making TG a sub-group of population susceptible/vulnerable. The development of TG animal models is needed and performed by selecting suitable dose for long-term treatment of rats based on T levels of corresponding cisgender and specific endpoints.

Methods:

- 4 rats per group/sex exposed by subcutaneous injection;
- 3 dose levels (DL) selected from available literature and guidelines plus Control (C) group for both;
- Male to Female (MtF): E + cyproterone acetate, administered 5 times/week: C: 0, DL1: 0.3+1.1, DL2: 0.3+3.1 and DL3: 0.6+1.1 mg/kg body weight (bw);
- Female to Male (FtM): T administered 2 times/week: C: 0, DL1: 0.45, DL2: 0.95, DL3: 2.05 mg/kg bw.

Rats are monitored daily, bw and food consumption 2 times/week. After treatment, rats are anaesthetized and blood was collected; reproductive organs and liver are excised/weighted and stored for histopathological and gene expression analysis. T, the best biomarker to evaluate the success of HT, E2 and LH serum levels are measured. Specific parameters include, for MtF experiment sperm count from cauda epididymis, and for FtM clitoral gain.

Results: MtF: T levels, bw gain, food consumption, testis weight and sperm count are reduced, E levels are increased in all groups. Testis relative weight is reduced in DL2 and DL3. Liver weight is reduced at DL3 and relative weight at DL2. FtM: bw gain is increased in DL2 and DL3; food consumption is increase in DL3. Gross pathology analysis showed dose-dependent increase of hemorrhagic ovaries/uteri significant at DL3. Ovary absolute and relative weight is reduced at DL2 and DL3. Uterus weight is reduced at DL1 and DL2. T is increased in all groups.

Conclusion: Preliminary results showed that in FtM, T reached the range of corresponding cisgender but the ovaries/uteri effects lead to exclude DL3 in long-term studies. Although the T was increased, the DL selection in MtF group is linked to the ongoing investigations.

P2.44 POSTERS

Effects of hormonal treatment on dermatological outcome in transgender people: a multicentric prospective study (ENIGI)

Carlotta Cocchetti[1], Giovanni Castellini[2], Mario Maggi[3], Alessia Romani[1], Linda Vignozzi[1], Yona Greenman[4], Martin den Heijer[5], Guy T'Sjoen[6], Alessandra Daphne Fisher[1]

[1]Andrology, Women's Endocrinology and Gender Incongruence Unit, Florence University Hospital, Florence, Italy, [2]Psychiatric Unit, Department of Health Sciences, [3]Department of Experimental and Clinical Biomedical Sciences "Mario Serio", University of Florence, Florence, Italy, [4]Institute of Endocrinology and Metabolism, Tel Aviv Sourasky Medical Center, Tel Aviv University, Tela Aviv, Israel, [5]Department of Endocrinology and Center of Expertise on Gender Dysphoria, Amsterdam University Medical Center, VUmc, Amsterdam, The Netherlands, [6]Department of Endocrinology, Center for Sexology and Gender, Ghent University Hospital, Ghent, Belgium

Context: Dermatological changes represent an important outcome of gender-affirming hormonal treatment (GAHT), although limited research has been conducted in this field.

Objective: To assess dermatological changes in transgender people after the start of GAHT and to investigate whether various hormonal preparations differently affect dermatological changes in trans AFAB (assigned female at birth) people.

Methods: In a multicenter prospective study, 484 participants (193 assigned male at birth/AMAB and 291 AFAB) were evaluated at baseline (T0), six (T1) and 12 months (T2) after the start of GAHT. Hair growth was assessed by the Ferriman-Gallwey (FG) score, acne by the Global Acne Grading Scale (GAGS), alopecia by the Norwood Hamilton (NH) scale.

Results: In AFAB people a significant increase in FG score and NH grade was observed over time, as well as in GAGS score in a subsample of 71 individuals ($p < 0.001$). T undecanoate and esters showed a higher increase in hair distribution at T2 vs. T1 as compared to T gel ($p < 0.01$). T esters showed a significantly higher impact in GAGS score modifications at T1 and at T2 vs. T0 compared to T gel ($p = 0.021$ and $p = 0.003$, respectively). In trans AMAB people a significant decrease of FG score was observed over time ($p < 0.001$), although 51.3% of individuals still reported an FG score higher than eight after 12 months.

Conclusion: T treatment increased hair growth, acne and alopecia prevalence in AFAB people, with T undecanoate and esters influencing hair growth more than T gel. Opposite dermatological changes were observed in AMAB people.

P2.45 POSTERS

What do Psychologists 'do' in UK Gender Identity Clinics?

Igi Moon[1]

[1]Warwick University, Sociology, Coventry, United Kingdom

What do psychologists 'do' in UK Gender identity Clinics? Within Gender Identity Clinics (GIC's) the role of clinical and counselling psychologists working with transgender clients is particularly important - offering psychological assessment, formulation and intervention as well as assessing readiness for medical interventions such as surgery and hormone treatment. How transgender clients experience psychological input is also highly relevant. There had been no audit of the role of psychology within GIC's or about the experiences of those receiving psychological services. In effect, there

had been nothing to show what it is psychologists 'do' in the services. This study aimed to address this gap. It explored: a) how psychologists are trained to carry out their role in gender clinics and b) how psychologists work with transgender clients. Eleven psychologists, all qualified and working within gender clinics, were interviewed and the data qualitatively analysed using Thematic Analysis.

The findings indicated that a form of Gender Tectonics is operating at several levels: 1) Government Consultations are a regular feature of decisions around the future of UK gender clinics. These act as "boss texts" legitimating the way treatment for gender dysphoria is conducted; 2) gender articulation in relation to our understanding of gender with young people sharing a very different and more contemporary language around gender than those clinicians working with them; 3) intergenerational shifts operate at the point of transition between services where young people aged 18 are moved into adult services without support and at a particularly vulnerable time in social life; 4) Life experience and autobiography is coded into diagnosis via assessments: thus the role of psychologist is shifting to diagnostician and this is operating without the consent of psychologists.

P2.46 POSTERS

Sexual habits among Italian transgender adolescents: a cross-sectional study

Jiska Ristori[1,2], Eleonora Rossi[3], Carlotta Cocchetti[1,2], Francesca Mazzoli[2,4], Giovanni Castellini[3], Linda Vignozzi[1,2], Valdo Ricca[3], Mario Maggi[1], Alessandra Daphne Fisher[2,4]

[1]Clinical and Biomedical Sciences, Department of Experimental, [2]Andrology, Women's Endocrinology and Gender Incongruence Unit, [3]Psychiatry Unit, Department of Health Sciences, [4]Department of Experimental, Clinical and Biomedical Sciences University of Florence, Florence, Italy

Background: Recent studies showed that transgender (TGN) adolescents are more at risk of negative sexual outcomes than their peers. However, little is known about the psychopathological and sociodemographic correlates of sexual-related experiences in TGN adolescents.

Aims: This cross-sectional study aimed at overcoming this limitation describing this association in a sample of 18 transgirls and 32 transboys recruited at the Gender Clinic of the University of Florence between 2015 and 2020.

Methods: Clinical, sociodemographic, and sexual-related features were collected through a face-to-face interview and anamnestic forms. Self-report questionnaires were administered to evaluate gender dysphoria (Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults), emotional and behavioral problems (Youth Self Report), and body uneasiness (Body Uneasiness Test).

Results. The percentage of subjects reporting to have had at least one romantic relationship in life was 62.5% among transboys and 16.7% in transgirls (OR_{sex} = 8.65, $p < 0.01$), whereas 28.1% of transboys and 5.6% of transgirls were sexually active (OR_{sex} = 6.63, $p > 0.05$). A worse psychological functioning and risk-taking behaviors were associated with being sexually active ($p < 0.05$).

Conclusions: These results underline the deep interconnection between psychological vulnerability and sexual-related features in TGN adolescents, confirming the importance of developing gender inclusive sex education programs to prevent negative sexual outcomes in this population.

P2.47 POSTERS

Appearent autistic traits in transgender people: a prospective study of the impact of gender-affirming hormonal treatment

Francesca Mazzoli[1;2], Emanuele Cassioli[3], Jiska Ristori[1;2], Giovanni Castellini[3], Eleonora Rossi[3], Alessia Romani[1;2], Carlotta Cocchetti[1;2], Guido Giovanardi[4], Maddalena Mosconi[5], Vittorio Lingiardi[4], Anna Maria Speranza[4], Valdo Ricca[3], Linda Vignozzi[1;2], Mario Maggi[1], Alessandra Daphne Fisher[1;2]

[1]Department of Experimental, Clinical, and Biomedical Sciences, [2]Andrology, Women's Endocrinology and Gender Incongruence Unit, [3]Department of Health Sciences, Psychiatry Unit, University of Florence, [4]Department of Dynamic and Clinic Psychology, Faculty of Medicine and Psychology, Sapienza University of Rome, Rome, Italy, [5]Azienda Ospedaliera San Camillo Forlanini, Rome, Italy

Background: In recent years there has been a strong and growing interest in the co-occurrence of Gender Dysphoria/Gender Incongruence (GD/GI) and Autism Spectrum Disorder (ASD).

Aims: The aims of our study were to evaluate differences in Autism Spectrum Quotient (AQ) scores between a sample of hormone-naïve transgender and cisgender people, the possible impact of gender-affirming hormonal treatment (GAHT) on AQ scores across time and the role of alexithymia and social anxiety as possible mediators of changes in AQ scores.

Methods: A cross-sectional comparison between cisgender and transgender people before GAHT and a prospective study on the effects of GAHT over time were performed. Transgender and cisgender people completed several psychometric tests: the AQ, the Gender Dysphoria Questionnaire for Adolescents and Adults (GIDYQ-AA), the Body Uneasiness Test (BUT), the Toronto Alexithymia Scale (TAS), the Liebowitz Social Anxiety Scale (LSAS) and the Symptom Checklist 90 revised (SCL-90-R). A total sample of 789 persons (n = 229 cismen; n = 172 ciswomen; n=206 transmen; n = 182 transwomen) referring to the Florence and Rome Gender Clinics was enrolled. Of these, 62 participants

referring to the Florence Gender Clinic were evaluated in a prospective study at baseline and 12 months after GAHT.

Results: Groups showed significant differences in terms of autistic traits: ciswomen showed lower scores of AQ while cismen reported higher scores of AQ than all other groups ($p < 0.001$). Transgender individuals showed significant higher levels of Gender Dysphoria (GD; GIDYQ-AA) and body uneasiness (BUT) than the other groups ($p < 0.001$). Considering alexithymia (TAS) and social anxiety (LSAS), transgender individuals scored significantly higher when compared to cisgender ones ($p < 0.001$ and $p < 0.05$ respectively). No significant differences in general psychopathology (SCL-90-R) were found between groups ($p = 0.61$). Across time, transmen and transwomen showed a significant reduction in AQ scores ($p < 0.002$). The decrease in alexithymia and social anxiety after GAHT did not predict the change in AQ scores.

Conclusions: The autistic traits measured in our sample may represent an epiphenomenon of GD rather than being part of an ASD condition, since they significantly decreased after 12 months of GAHT.

P2.48 POSTERS

Transgender: minority within a minority. A survey among students of the health professions courses of the University of Ferrara, Italy

Rosaria Cappadona[1], Giulia Di Bari[2], Eurika Bolognesi[2], Mara Tormen[2], Sara Puzzarini[2], Sara Vecchiattini[2], Pantaleo Greco[1]

[1]Department of Medical Sciences, University of Ferrara, Ferrara, Italy, [2]Obstetrics and Gynecology Unit, Hospital of Ferrara, Ferrara, Italy

Background: The binary male/female classification, with its barriers and stereotypes, is reductive and inadequate for a scientific approach. The "trans" phenomenon, undermining such classical categorization, is not adequately managed by the society and exposes LGBT and transgender people to prejudice and discrimination at multiple levels, e.g., family, school, work, social networks, web, and also to barriers to health care that make extremely difficult to access medical treatment.

Aims: This study has two objectives: (a) to check the available literature on a little investigated topic; (b) to assess the knowledge of young people intended in the near future to ensure health protection also of minorities.

Methods: (a) review of the literature on the most widely used library databases; (b) survey addressed to 1720 students (71% F) of the University of Ferrara, attending the different health professions degree courses, by using an anonymous questionnaire (Google Modules) to analyze attitudes and behaviors with regard to the LGBT issue and to explore the stereotypes leading to common prejudices.

Results: (a) The bibliographic search selected 22 articles, and the review allowed to identify five fundamental areas: society, health care, religion, school/university, and social network, where experiences of discrimination and harassment generate negative effect on biological and psycho-social well-being, limitations of human and civil rights, and health inequalities. (b) Overall, 428 students (24.8%, 72% F, mean age 18-25 years) completed the questionnaire. The results showed a high acceptance of homosexuality and transsexuality, and only a slight presence of stereotyped ideas about gender.

Conclusions: (a) the review highlights the importance of including training programs in the professional health and university curriculum to achieve adequate cultural competence capable of providing adequate healthcare. (b) the questionnaire outlined a singular reality of young university students. Although homosexuality and transsexuality are not easily accepted by the society, the great majority of participants (96%) not only quite accept it, despite the common stereotyped ideas, but also believe that homosexuals and transgender people can be fully part of their life.

P2.49 POSTERS

Analysis of chronic pain in outpatient and sex differences in pain perception

Matteo Mordeglia[1], Valeria Maria Messina[2]

[1]Università degli studi di Genova, Facoltà di Medicina e Chirurgia, Genoa, Italy, [2]Ordine dei Medici Chirurghi, Genoa, Italy

In Italy the percentage of patients with chronic pain is estimated between 21% and 25% of the total population. Pain is considered chronic when it persist or recurs for more than 3-6 months.

The aim of the study is to evaluate the prevalence of chronic pain in Liguria in patients of general practitioners, confirming or not the gender differences in pain perception.

300 patients were enrolled from ligurian medical studies and, through a questionnaire of 8 questions, various aspects of their lives were explored including the intensity of the pain perceived, the health figures consulted, the symptoms and the therapy. The questionnaire was created based on the Breivik study "Survey of chronic pain in Europe: Prevalence, impact on daily life, and treatment".

The average age of the sample group was 60,5 years, 58% of patients said they had chronic pain, in particular this condition, divided by gender, was present in 65% of women and 48% of men. The most frequent localization was the back. The most used drug was Paracetamol (20%), while the category of most used drugs was NSAIDs (28%). The most consulted health figure was the family doctor. The symptom most complained of by the patients was the limitation of work and daily activities, present in 67% of patients, followed by depressed mood (60%) and by insomnia (47%). 12% of the sample group said they had no symptoms other than pain.

The analysis presents a negative picture, with patients experiencing their pain as a limitation of both working and relational life, with important influences also in terms of mood. The gender difference is confirmed, suggesting that it would be appropriate to modulate the therapeutic paths according to the sex of the patient we are treating.

P2.50 POSTERS

Sex differences in the interplay between cerebral small vessel disease (CSVD) risk factors and cognitive decline

Moustafa H. Fouad[1], Amanpreet Kaur[2], Maria Natashini Rajah[3], Louise Pilote[2], Hassan Behlouli[4], Zahra Azizi[4]

[1]Medicine, [2]Centre for Outcomes Research and Evaluation, [3]Douglas Research Center, Human Neuroscience, [4]Centre for Outcomes Research and Evaluation, McGill University, Montreal, Canada

Background: Sex differences in the rate of cognitive decline have been reported, with women exhibiting higher baseline cognitive function compared to men, but showing a faster rate of decline starting in the 5th decade. However, it remains unclear whether and how vascular risk factors associated with cerebral small vessel disease may contribute to this sex difference. Our objective was to evaluate sex differences in cognitive performance tests at two time points (2014 and 2019) and to compare the rate of cognitive decline during the 5-year period.

Methods: Using data from UK biobank, we evaluated sex differences in cognitive performance tests at two time points (2014 and 2019) and compared the rate of cognitive decline during the 5-year period. A repeated measure analysis using a mixed effect model and sensitivity analysis on the vascular risk factors outlined followed by z-score analysis to determine any differences in cognitive function between men and women

Results: Women (> 55 years) had lower first cognitive assessment (2014) measures in attention as measured by the reaction time test: 23.1 milliseconds slower ($p < .0001$) but minimal differences in executive function and memory compared to age-matched men. Considering vascular risk factors (SVD related) and age, women had slightly lower rate of decline in executive function compared to men as evident by MVA and z-score of the matrix pattern completion test: 0.1 score higher/5y ($p = 0.03$) over a 5-year period but no significant differences were found in memory or attention domains.

Conclusion: Overall, the rate of cognitive decline in 3 cognitive domains (executive function, memory, and attention) did not significantly differ between men and women when accounting for vascular risk factors. Having a better understanding of sex differences in cognitive decline is an important step to the development of personalized, sex-specific medicine.

P2.51 POSTERS

A sex and gender-differentiated approach in psychiatric care: widening horizons

Giuseppe Basile[1], Susanna Marinelli[2]

[1]IRCCS Orthopedic Institute Galeazzi, Milan, Italy, [2]School of Law, Università Politecnica delle Marche, Ancona, Italy

Sex and gender are important variables in medicine and psychiatry, and have been gaining recognition as significant contributing factors in disorders in virtually all areas of medicine. In psychiatry, although a sex and gender-differentiated diagnostics and management approach has not yet been outlined, there is indisputable evidence pointing to sex and gender differences in neuropsychiatric disorders. The initial interest in gender issues was stimulated by recognition that women were absent from much medical research. Now, however, the field has expanded to include more specific and sensitive attention to men and the role of gender and gender differences.

The presentation aims to succinctly lay out possible avenues towards the elaboration of more sex- and gender-stratified evidence and the development of guidelines that would take into account sex/gender-specific medicine, in terms of dosage, tolerability, possible interactions and side effects, sensitivity of diagnostic tests, and distinct treatment strategies. The possible benefits of telepsychiatry, which particularly during the COVID-19 pandemic has rapidly asserted itself as a valuable tool, is also briefly explored. Biological, genetic, epigenetic, psycho-social, cultural, and environmental factors all play a synergistic role in defining sex/gender differences, and even in bringing about unwanted sex/gender disparities. Understanding such dynamics and taking stock as to the role of sex/gender in physiological and pathological processes is essential if we are to optimize prevention strategies, the identification of clinical signs, prognosis definition, and lay out more effective, tailored therapeutic pathways.

P2.52 POSTERS

Gender specific medicine and general medicine

Valeria Maria Messina[1], Loreley Bianconi[2], Annamaria Municinò[3]

[1]Ordine dei Medici, Chirurghi di Genova, Genoa, Italy, [2]Medico di Medicina Generale, AUSL Romagna, Cattolica, Italy, [3]Cardiologia Ospedale Gallino, ASL3 Genovese, Genoa, Italy

Background: Medicine is an art, the art of taking care of patients in all their biological, psychological, socio - cultural and socio-economic aspects. The doctor-patient relationship is a tool of this art: in particular the family doctor (MMG) becomes the first drug, the best

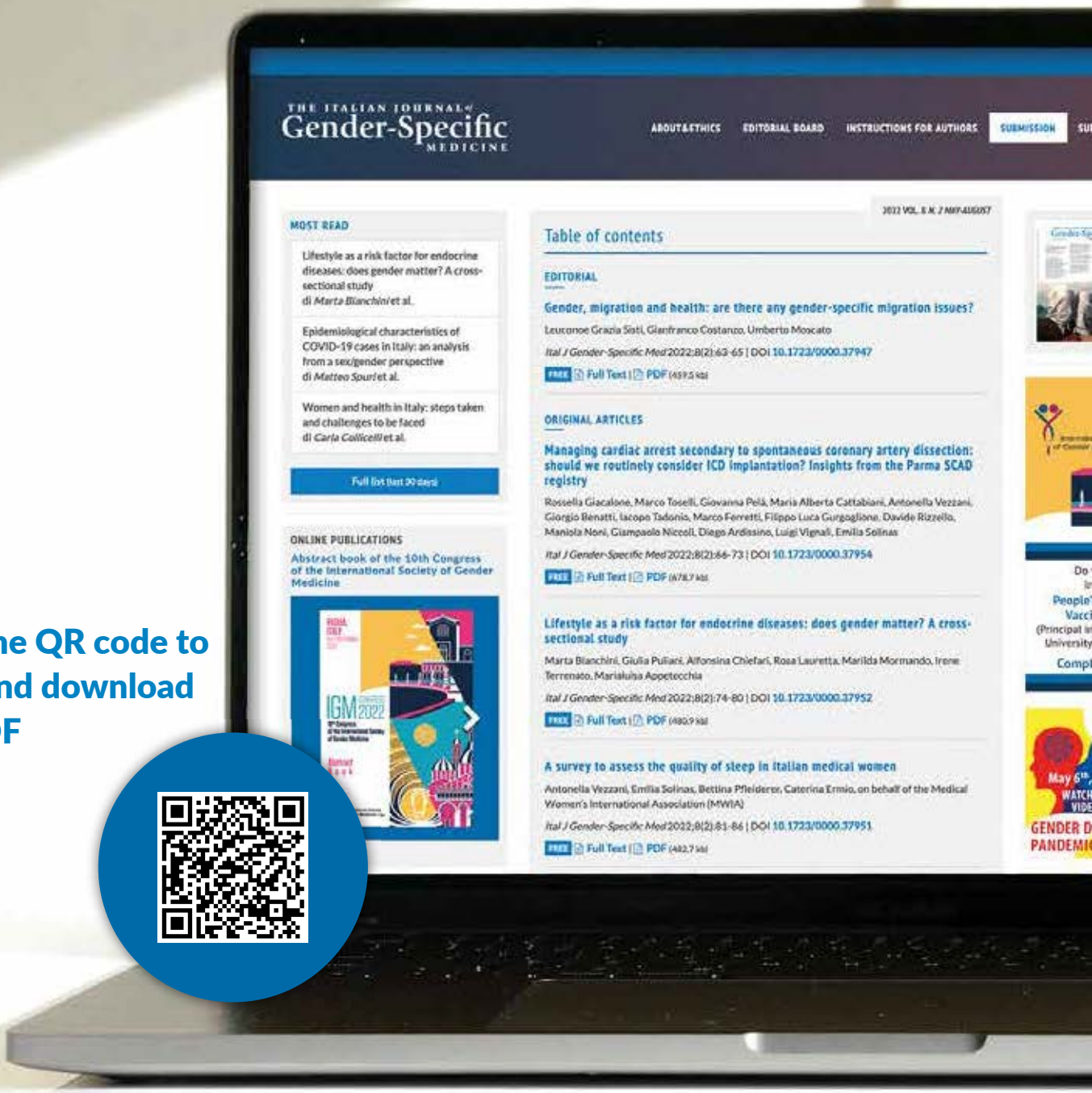
medicine. The MMG ensures the citizen's contact with the national health system (SSN). The extensiveness and quality of his training are crucial to be able to face the care of the person with appropriateness and equity. At the center of the MMG's work is the patient and the goal is to take charge of health needs to ensure the best prevention and / or treatment. This is achieved by knowing how health needs arise, manifest, evolve and which therapeutic approach to use in relation to the patient's characteristics: first of all the gender and for this to happen it is necessary to know and apply the Gender Specific Medicine

Aim: The full implementation of the law 3/2018 11th January, on the need to adopt a gender perspective in every field of health will be achieved if family medicine is fully involved in this process.

Discussion: In Italy death for CV pathologies is 38.7% men vs 48.4% women (ISS data). Knowing the weight that these pathologies have on Public Health, being the first cause of mortality for women, it is important to increase their awareness about the real risk. Nevertheless, the importance of CV pathologies in women has been little considered and scarcely included in the related clinical studies. Hence the worse prognosis in woen is an additional incentive to implement gender specific CV prevention

Conclusions: Gender Specific Medicine is the necessary tool to treat the person on the basis of appropriateness criteria and not on generic rules translated by one gender to another. At present, our task is to remove the veil created by years of lack of gender specific knowledge in order to fulfill .the law 3/2018 11th January, on the need to adopt a gender perspective in every field of health. This aim will be achieved when family medicine is going to be fully involved.

The abstract book of the 10th Congress
of the International Society of Gender Medicine
is available online at **www.gendermedjournal.it**



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