



New insights for a better management of irritable bowel syndrome

June 17-19, 2024

Palazzo Re Enzo, Bologna, Italy

ABSTRACT BOOK

ENDORSEMENTS



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

DEPARTMENT
OF MEDICAL
AND SURGICAL SCIENCES



SERVIZIO SANITARIO REGIONALE
EMILIA-ROMAGNA
Azienda Ospedaliero - Universitaria di Bologna
IRCCS Istituto di Ricovero e Cura a Carattere Scientifico

POLICLINICO DI **SANT'ORSOLA**



Società Italiana di Neuro-Gastro-Enterologia e Motilità





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CONGRESS CHAIR



Giovanni Barbara
Italy

SCIENTIFIC COMMITTEE



Vincenzo Stanghellini
Chair, Italy

FACULTY



Viola Andresen
Germany



Francesco Asnicar
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Qasim Aziz
United Kingdom



Fernando Azpiroz
Spain



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Maria Raffaella Barbaro
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Massimo Bellini
Italy



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FACULTY



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Lin Chang
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Giuseppe Chiarioni
Italy



Bruno Chumpitazi
USA



Stephen Collins
Canada



Maura Corsetti
United Kingdom



Cesare Cremon
Italy



Mauro D'Amato
Italy



Roberto De Giorgio
Italy



Giada De Palma
Canada



Carlo Di Lorenzo
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Vasile Drug
Romania



Antonio Gasbarrini
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Magnus Simren
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Ami Sperber
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Annamaria Staiano
Italy



Jan Tack
Belgium



Tim Vanuytsel
Belgium



Nathalie Vergnolle
France



Maria Vicario
Spain



Susanna Walter
Sweden

SCIENTIFIC PROGRAM

POSTGRADUATE COURSE

A JOURNEY TOWARDS EFFECTIVE MANAGEMENT OF IBS



PALAZZO RE ENZO

MONDAY, JUNE 17TH

10:00	Registration
11:00	Diagnosis
Chairs:	<i>Maura Corsetti (UK), Giovanni Barbara (Italy)</i>
11:00	Challenges in IBS management: Clinical case 1 <i>Daniele Salvi (Italy)</i>
11:15	Discussion
11:35	History and symptom assessment <i>Jan Tack (Belgium)</i>
12:00	Diagnostic tests: When and which <i>Cesare Cremon (Italy)</i>
12:25	Role of breath testing <i>Johann Hammer (Austria)</i>
12:50	Lunch Break
13:40	Treatment
Chairs:	<i>Lin Chang (USA), Magnus Simren (Sweden)</i>
13:40	Challenges in IBS management: Clinical case 2 <i>Tim Vanuytsel (Belgium)</i>
13:55	Discussion
14:15	Treatment of abdominal pain <i>Maura Corsetti (UK)</i>
14:40	Treatment of abdominal bloating <i>Chloè Melchior (France)</i>
15:05	Treatment of constipation in IBS-C <i>Carmelo Scarpignato (Malta)</i>
15:30	Treatment of diarrhea in IBS-D <i>Brian Lacy (USA)</i>
15:55	Closing remarks <i>Lin Chang (USA)</i>
16:00	Adjourn



OPENING CEREMONY

PALAZZO RE ENZO

MONDAY, JUNE 17TH

18:00 Welcome

Giovanni Barbara

Congress Chair, University of Bologna

Vincenzo Stanghellini

Scientific Committee Chair, University of Bologna

Alberto Credi

Pro-Rector of Research, University of Bologna

Marco Seri

Scientific Director IRCCS Policlinico St. Orsola

Gianandrea Pasquinelli

*Director, Department of Medical and Surgical Sciences,
University of Bologna*

Gilberto Poggioli

*Director, Medical and Surgical Department of Digestive Hepatic
and Endocrine Metabolic Diseases, IRCCS Policlinico St. Orsola,
Bologna*

18:30 Inaugural Lecture

Emilia Romagna, a magic region

Luca di Montezemolo

*President of Italo, Fondazione Telethon
and Manifatture Sigaro Toscano*

19:30 Cocktail

PROGRAM PLENARY SESSION



PALAZZO RE ENZO

TUESDAY, JUNE 18TH

- | | |
|-------|---|
| 07:00 | Registration |
| 08:00 | Program overview
<i>Giovanni Barbara (Italy)</i> |

Session I – Rome Foundation Symposium

Chairs: *Jan Tack (Belgium), Vincenzo Stanghellini (Italy)*

- | | |
|-------|---|
| 08:20 | Rome Foundation related activities
<i>Jan Tack (Belgium)</i> |
| 08:30 | Rome V epidemiology study
<i>Ami Sperber (Israel)</i> |
| 08:55 | Plausibility of pathophysiological mechanisms in IBS
Consensus between Rome Foundation and
Neurogastroenterology & Motility Scientific Societies
<i>Jan Tack (Belgium)</i> |
| 09:20 | IBS-IBD overlap
Outcome of the Rome Foundation Working Team
<i>Lin Chang (USA)</i> |
| 09:45 | Coffee Break |

Session II – Overlapping Conditions

Chairs: *Eamonn Quigley (USA), Roberto De Giorgio (Italy)*

- | | |
|-------|--|
| 10:15 | Overlap of IBS with organic disorders
<i>Giovanni Barbara (Italy)</i> |
| 10:40 | Mental comorbidities
<i>Sarah Ballou (USA)</i> |
| 11:05 | Symptom clusters
<i>Magnus Simren (Sweden)</i> |

Session III – Genotype / Phenotype Associations in Adult and Pediatric Patients

Chairs: *Annamaria Staiano (Italy), Michael Camilleri (USA)*

11:30 Genetic factors: Biobank-scale studies

Mauro D'Amato (Italy)

11:55 Genotypic-phenotypic associations of abdominal pain

Qasim Aziz (UK)

12:20 Patient reported outcomes (PROs) in IBS

Brian Lacy (USA)

12:45 Pediatric IBS: What is peculiar in children

Carlo Di Lorenzo (USA)

13:10 Lunch Break and Poster Session

Poster Session

Chairs: *Paola Iovino (Italy), Vasile Drug (Romania)*

Committee Members

Gabrio Bassotti, (Italy)

Massimo Bellini (Italy)

Serhat Bor (Turkey)

Loris Lopetuso (Italy)

Daniele Mandolesi (Italy)

Giovanni Sarnelli (Italy)

Carola Severi (Italy)

Tim Vanuytsel (Belgium)

PROGRAM WORKSHOP I



PALAZZO RE ENZO 

TUESDAY, JUNE 18TH

Chairs: *Stephen Collins (Canada), Peter Malfertheiner (Germany)*

14.20 Bromatech Sponsored lecture

Modulation of gut microbiota in patients with IBS and systemic nickel allergy after diet and probiotic supplementation: a pilot study

Cristiano Caruso (Italy)

Session IV – Gut Microbiota

14:50 Influence of microbiota on gut sensory-motor function

Giada De Palma (Canada)

15:15 Precision medicine: Microbiota signatures predicting probiotic response

Simone Guglielmetti (Italy)

15:40 Clinical evidence of probiotic efficacy

Viola Andresen (Germany)

16:05 Coffee Break

Free Papers Session

Chairs: *Magnus Simren (Sweden)*, Giovanni Marasco (Italy)*

16:35 Behavioural outcomes following early life stress: focus on the role of the microbiome-gut-brain axis in psychiatric comorbidity in IBS

Gerard Clarke (Ireland)

16:50 Low levels of fecal primary bile acids are associated with altered gut microbiota and colonic immune gene expression in irritable bowel syndrome

Wilhelm Sjöland (Sweden)

17:05 Agreement rate of acute food induced mucosal alterations visualized using confocal laser endomicroscopy in irritable bowel syndrome patients

Lukas Balsiger (Belgium)

17:20 Disorders of Gut Brain Interactions following Salmonella gastroenteritis: a 30-Years longitudinal and prospective study

David Meacci (Italy)

17:35 Adjourn

20:00 Social Dinner

* Reporting in plenary next day

PROGRAM WORKSHOP II



SALA BORSA

TUESDAY, JUNE 18TH

Chairs: *Lin Chang (USA), Massimo Bellini (Italy)*

14.20 Wellmicro Sponsored lecture

Hidden players: a metagenomic multi-kingdom approach for a better IBS characterisation

Andrea Castagnetti (Italy)

Session IV – Clinical

14:50 Role of gender in IBS

Susanna Walter (Sweden)

15:15 Abdomino-phrenic dyssynergia: From mechanisms to treatment

Fernando Azpiroz (Spain)

15:40 IBS overlapping with anorectal disorders

Giuseppe Chiarioni (Italy)

16:05 Coffee Break

Free Papers Session

Chairs: *Chloé Melchior (France), Fernando Azpiroz (Spain)**

16:35 Exploring volumetric disparities in the Emotional Arousal System and their correlation with symptomatology in Severe IBS: Insights from the "MAGONT" STUDY

Myria Evripidou (Sweden)

16:50 Ondansetron in diarrhoea predominant irritable bowel syndrome and functional diarrhoea: outcomes from a real-life clinical experience -

Caterina Sbarigia (UK)

17:05 Increased disease burden in irritable bowel syndrome with comorbidities

Ines Trindade (Sweden)

17:20 Randomized controlled trial - Effects of fructans on symptoms and hydrogen production in IBS-D patients on a low FODMAP diet -

Chloé Melchior (France)

17:35 Adjour

20:00 Social Dinner

* Reporting in plenary next day

PROGRAM WORKSHOP III



ORATORIO SAN GIOVANNI BATTISTA DEI FIORENTINI 

TUESDAY, JUNE 18TH

Chairs: *Qasim Aziz (UK), Edoardo Savarino (Italy)*

14:20 Cadigroup Sponsored lecture

Escherichia coli Nissle 1917: targeting microbiota to fight IBS

Giovanni Barbara (Italy)

Session IV – Pathophysiology

14:50 Intestinal biofilms: The hidden secrets of the mucus

Nathalie Vergnolle (France)

15:15 Intestinal barriers and the gut-brain axis

Maria Raffaella Barbaro (Italy)

15:40 Hints from the DISCOVERIE H2020 Project

Development, diagnostic and prevention of gender-related somatic and mental comorbidities in IBS in Europe

Javier Santos (Spain)

16:05 Coffee Break

Free Papers Session

Chairs: *Florencia Carbone (Belgium), Michael Camilleri (USA)**

16:35 Involvement of eosinophil-driven intestinal immune activation in the response to the DOMINO diet in primary care Irritable Bowel Syndrome

Karen Routhiaux (Belgium)

16:50 Intestinal Permeability in Irritable Bowel Syndrome: Results from the Multicentric European Study Discoverie

Alice Rustichelli (Belgium)

17:05 Exploring nano-antibodies targeting Trypsin-3: A promising tool for alleviating symptoms of Irritable Bowel Syndrome

Celine Deraison (France)

17:20 Domain-specific impact of sucrase-isomaltase genetic variation on IBS risk and food preference

Leire Torices (Spain)

17:35 Adjour

20:00 Social Dinner

* Reporting in plenary next day

PROGRAM PLENARY SESSION



PALAZZO RE ENZO

WEDNESDAY, JUNE 19TH

Session V – Highlights from Tuesday's Free Papers Session and Immune Activation

Chairs: *Nathalie Vergnolle (France), Stephen Collins (Canada)*

08:00 Highlights from Tuesday's Free Paper Sessions

*Magnus Simren (Sweden), Fernando Azpiroz (Spain),
Michael Camilleri (USA)*

08:30 Eosinophils in IBS and related conditions

Maria Vicario (Spain)

**08:55 Mast cells in IBS: Pathophysiology and potential therapeutic
implications**

Guy Boeckxstaens (Belgium)

Session VI – Luminal Factors

Chairs: *Serhat Bor (Turkey), Cesare Cremon (Italy)*

**09:20 Bile acids malabsorption and IBS: Pathophysiology and clinical
implications**

Michael Camilleri (USA)

**09:45 Mechanisms underlying food-related symptoms in children and
adults**

Bruno Chumpitazi (USA)

10:10 The microbiota-brain axis

Premysl Bercik (Canada)

10:35 Coffee Break

PROGRAM PLENARY SESSION



PALAZZO RE ENZO

WEDNESDAY, JUNE 19TH

Session VII – What's New on Gut Microbiota

Chairs: *Patrizia Brigidi (Italy), Antonio Gasbarrini (Italy)*

11:00 **Microbiome: Hot off the press**
Antonio Gasbarrini (Italy)

11:25 **Computational metagenomics for the analysis of gut microbiota**
Francesco Asnicar (Italy)

11:50 **Gut microbiota testing in clinical practice**
Gianluca Ianiro (Italy)

Session VIII – Hot Topics on Management

Chairs: *Lin Chang (USA), Carmelo Scarpignato (Malta)*

12:15 **Exploring the effectiveness of personalized diet interventions in IBS**
Florenca Carbone (Belgium)

12:40 **Microbiota modulation: A true alternative to conventional therapies?**
Eamonn Quigley (USA)

13:05 **Treatment of IBS spectrum: From algorithms to practical, cost effective biomarkers**
Michael Camilleri (USA)

13:30 **Concluding remarks and awards for best abstracts**
Giovanni Barbara (Italy)

POSTER SESSION

POSTER AREA - JUNE 18TH, 2024 - TIME: 13:10-14:20

	Title	Topic	Presenter	Other Authors
01	Involvement of enteric glial cells in the pathophysiology of irritable bowel syndrome.	Basic Science	Julie Beaudeau	Orell Gustav, Barazanjí Nawroz, Walter Susanna, Keita Ása
02	Evaluation of the beneficial effects of a product containing gamma-aminobutyric acid (GABA) in post-inflammatory irritable bowel syndrome: a preclinical study	Basic Science	Laura Benvenuti	Di Salvo Clelia, Valdiserra Giulia, Antonioli Luca, Bellini Massimo, Lambiasi Christian, Lucarini Elena, Di Cesare Mannelli Lorenzo, Ghelardini Carla, Fornai Matteo
03	Cromolyn inhibits TRPA1 mediated visceral hypersensitivity via GPR35	Basic Science	David Bulmer	Higham James, Pearce Abigail, Hockley James, Rahman Taufiq, St John Smith Ewan, Brown Alistair, Ladds Graham, Suzuki Rie, Bulmer David
04	The effect of sucrase-isomaltase (SI) gene variation on gut microbiota composition: a population-based survey	Basic Science	Cristian Diaz-Munoz	Hu Shixian, Zhernakova Alexandra, Vich Vila Arnau, Weersma Rinse, Fu Jingyuan, D'Amato Mauro
05	Biallelic variants in PIEZO1 underlie a novel form of enteric dysmotility disorder	Basic Science	Chiara Diquigiovanni	Valenti Francesca, Sardar Sabah, Boschetti Elisa, Caporali Leonardo, Malagelada Carolina, Vassalli Massimo, Bergamini Christian, De Giorgio Roberto, Bonora Elena
06	Cuprizone-induced demyelination affects central and enteric nervous system of juvenile mice in a gender-dependent manner	Basic Science	Sofia Faggin	Tietto Angela, Nasini Sofia, Bobbo Arianna, Colombo-Taccani Gaia, Bosi Annalisa, Giaroni Cristina, Comai Stefano, Savarino Edoardo Vincenzo, Giron Maria Cecili
07	Toll-like receptor 4 signaling interaction with enteric serotonergic neurotransmission in murine models of small intestinal inflammation	Basic Science	Sofia Faggin	Tietto Angela, Priore Antonio, Magagna Vanessa, Bosi Annalisa, Giaroni Cristina, Porzionato Andrea, Savarino Edoardo Vincenzo, Giron Maria Cecilia
08	Enteric dysfunctions in experimental multiple sclerosis: alterations of inhibitory nitrgic neurotransmission regulating small intestinal motility in mice	Basic Science	Angela Tietto	Faggin Sofia, Bobbo Arianna, Colombo-Taccani Gaia, Priore Antonio, Magagna Vanessa, Bosi Annalisa, Giaroni Cristina, Savarino Edoardo Vincenzo, Giron Maria Cecilia
09	Exploring dynamic triggers of abdominal pain in irritable bowel syndrome using the Experience Sampling Method - preliminary results from the multicenter DISCOVERIE study	Clinical Science	Michelle Bosman	Michelle Bosman, Lisa Vork, Maaik Van Den Houte, Irina Midenfjord, Silvia Muñoz, Maria Raffaella Barbaro, Dan Dumitrascu, ESM DISCOVERIE group, Daisy Jonkers, Daniel Keszthelyi
10	Ultrasound Markers of Irritable Bowel Syndrome for Monitoring Treatment Outcomes in Central Sensitization Syndromes	Clinical Science	Rostyslav Bubnov	Spivak Mykol
11	Role of dietary habits on symptom control and gut microbiota composition in patients with irritable bowel syndrome with constipation	Clinical Science	Salvatore Crucillà	Altomare Annamaria, Di Rosa Claudia, Putignani Lorenza, Emerenziani Sara, Fabris Silvia, Ristori Maria Vittoria, Cicala Michele, Guarino Michele Pier Luca
12	Evening chronotype correlates with the severity of abdominal pain and impacts on sleep quality in patients with irritable bowel syndrome	Clinical Science	Italia Di Filippo	Catapano Viviana, Mormone Claudio, De Pierro Pierluigi, Polese Barbara, Rurgo Sara, Pesce Marcella, Sarnelli Giovanni
13	Discrepancies in stool consistency assessment among irritable bowel syndrome patients: A comparative analysis of self-reported Bristol stool chart and physician evaluation	Clinical Science	Tal Engel	Faibish Chen, Ukashi Offir

14	Immune-based Personalized Elimination Diet for the Treatment of Irritable Bowel Syndrome: A double-blind Randomized Sham-controlled Study	Clinical Science	Tal Engel	Tzur May, Lang Alon, Carter Dan, Ben-Horin Shomron, Engel Tal
15	Fecal consistency as a marker of good response in the treatment of functional bowel disorders and the role of soluble fibers	Clinical Science	Ilario Froehner Junior	Buzato Jocemari Noeli
16	Oral soluble fibers as a first approach to low anterior resection syndrome treatment	Clinical Science	Ilario Froehner Junior	Buzato Jocemari Noeli
17	Refractory functional diarrhea – introducing a new modality: the enterosorbents	Clinical Science	Ilario Froehner Junior	Buzato Jocemari Noeli
18	Challenges in Implementing Fecal Microbiota Transplantation and Building a Stool Bank: the Donor Screening Process	Clinical Science	Emmanuela-Gilca-Blanariu Georgiana-	Stefanescu Gabriela, Drug Vasile, Gologan Elena, Zaharia Silvia, Timofte Oana, Girleanu Irina, Mihai Catalina, Trifan Anca
19	Irritable Bowel Syndrome-Type Symptoms among Patients with Quiescent Inflammatory Bowel Disease	Clinical Science	Emmanuela-Gilca-Blanariu Georgiana-	Drug Vasile, Stefanescu Gabriela, Gologan Elena, Timofte Oana, Balan Gheorghe Gh, Olteanu Andrei Vasile, Andronic Cristiana, Trifan Anca
20	The contribution of therapeutic education of the patient to the treatment of irritable bowel syndrome (IBS)	Clinical Science	Elena Gologan	Gologan Andrei Nicolae, Grumeza Mara Krysta, Gologan Dimitrie Stefan, Gilca Blanariu Georgiana Emmanuela, Balan Gheorghe
21	Probiotic intervention improves quality of sleep	Clinical Science	Angela Horvath	Feldbacher Nicole, Stadlbauer Vanessa
22	Idiopathic bile acid diarrhoea impairs the permeability of the small and large intestine, which is associated with clinical manifestations	Clinical Science	Ana M. Gonzalez-Castro	A.M. Gonzalez-Castro, C. Munoz-Puig, L. Martinez, E. Exposito, A. Rodriguez, S. Mendez, C. Alonso-Cotoner, J. Santos, M. Vicario, B. Lobo
23	Navigating the Overlapping Symptoms: Insights from the Polish Registry of Microscopic Colitis and its Intersection with Irritable Bowel Syndrome.	Clinical Science	Marlicz Wojciech	Arkadiusz Bielski, Rydzewska Grazyna, Malecka-Panas Ewa, Regula Jaroslaw, Zwolinska-Wcislo Malgorzata, Wasko-Czopnik Dorota, Eder Piotr, Daniluk Jaroslaw, Rosolowski Mariusz, Marlicz Wojciech
24	Characteristics of Patients with Carbohydrate Intolerance in Irritable Bowel Syndrome (IBS)	Clinical Science	Mikhael-Moussa Hiba	Desprez Charlotte, Leroi Anne-Marie, Mion François, Gourcerol Guillaume, Melchior Chloé
25	High prevalence of autism spectrum and attention-deficit/hyperactivity disorder traits in patients with moderate-severe irritable bowel syndrome	Clinical Science	Gustav Orell	Barazanji Nawroz, Fernell Elisabeth, Lindberg Greger, Gillberg Christopher, Walter Susanna
26	Dietary macronutrient and FODMAP intake: role in response to the elimination and reintroduction phase of a low FODMAP diet	Clinical Science	Karen Routhiaux	Waegemans Lotte, Van den Houte Karen, Tack Jan
27	Gastrointestinal symptoms in patients with disorders of gut-brain interaction and fibromyalgia before and after therapy with medical cannabis	Clinical Science	Paola Iovino	Santonicola Antonella, Iovino Paola, Moscato Paolo, Loi Gabriella, Lauritano Anna, Buongusto Carmela, Autuori Federica
28	Real life urgency in relation to bowel movements may not be reflected in barostat thresholds for urge sensation in patients with irritable bowel dysfunction	Clinical Science	Jenny Sjö Dahl	Barazanji Nawroz, Orell Gustav, Ingemansson Anna, Walter Susanna
29	Differences in Medical Care Satisfaction of Patients with “Functional” vs “Organic” Esophageal Diseases: Italian Validation of the PPRS-SF Questionnaire and its Application in Clinical Routine Practice.	Clinical Science	Carlo Soldaini	Ruggiero Luigi, Sellitti Annamaria, Caloro Angela, De Leo Luca, Santonicola Antonella, Iovino Paola

30	An internet-based Acceptance and Commitment Therapy intervention for Disorders of Gut-Brain Interaction: Development of a personalized intervention for adults with DGBI and psychological distress	Clinical Science	Jakobsson Støre Siri	Jakobsson Sofie, Ringström Gisela, Gürbüz Benjamin, Nybacka Sanna, Sampaio Filipa, Simrén Magnus, McCracken Lance, Trindade Ines,
31	Effects of Menthacarin® on Intensity of Epigastric Pain and Global Improvement: A Pooled Subgroup Analysis by Age and Gender	Clinical Science	Berenike Stracke	Storr Martin, Funk Petra, Zimmermann Andrea, Stracke Berenike, Madisch Ahmed
32	Shame exacerbates the effect of bowel symptoms on psychological distress and quality of life in individuals with functional bowel disorders	Clinical Science	Ines Trindade	Blomsten Amanda, Nybacka Sanna, Colomier Esther, Sandberg Robert, Frandemark Asa, Törnblom Hans, Simren Magnus
33	Colonoscopy findings in patients with Irritable Bowel Syndrome	Clinical Science	Ivana Vasiljevic	Hadzifejzovic Milos, Nikolic Andreja, Dragasevic Sanja, Popovic Dragan, Bukumiric Zoran, Lukic Snezana
34	Colonic motor patterns after intracolonic infusion of fructose, fructans, and mannitol in healthy volunteers assessed with high-resolution colonic manometry	Clinical Science	Annelies Verheyden	Dubrule Sem, Vanuytsel Tim, Tack Jan
35	Do patients with constipation-predominant irritable bowel syndrome have altered transit time?	Clinical Science	Christian Von Muhlenbrock	Simian Daniela, Madrid Ana Maria
36	Bowel symptoms and disordered eating: prevalence and associated factors in the general population	Epidemiology	Amanda Blomsten	Trindade Ines, Nybacka Sanna, Melchior Chloé, Colomier Esther, Algera Joost, Weznauer Cecilia, Störsrud Stine, Törnblom Hans, Simrén Magnus
37	Dietary habits in individuals with bowel symptoms and symptoms compatible with eating disorders: results from a cross-sectional cohort from the Swedish general population	Epidemiology	Amanda Blomsten	Nybacka Sanna, Trindade Ines, Melchior Chloé, Colomier Esther, Algera Joost, Weznauer Cecilia, Störsrud Stine, Törnblom Hans, Simrén Magnus
38	Disorders of the gut-brain interactions in patients with celiac disease adhering to gluten free diet: a prospective 10-year study	Epidemiology	Luigi Colecchia	Candia Francesco, Gobbato Arianna, Di Biase Anna Rita, Crestani Sara, Cammarata Giulia, Boarino Valentina, Dajti Elton, Ravaioli Federico, Cremon Cesare, Colecchia Antonio, Barbara Giovanni, Iughetti Lorenzo, Marasco Giovanni
39	Hospitalization Outcomes and Long-Term Gastrointestinal Symptoms Fluctuation of Irritable Bowel Syndrome or Functional Dyspepsia Patients Positive for COVID-19	Epidemiology	Keren Hod	Marasco Giovanni, Hod Keren, Cesare Cremon, Raffaella Barbaro Maria, Cacciari Giulia, Falangone Francesca, Kagramanova Anna, Bordin Dmitry, The GI COVID study group, Giovanni Barbara
40	Epidemiology and clinical characterization of irritable bowel syndrome in Chilean diabetic patients	Epidemiology	Christian von Muhlenbrock	Herrera Karin, Madrid Ana Maria
41	Probiotic prescription among gastroenterologist and other healthcare professionals: insights from an Italian Survey	Management	Angelo Bruni	Marasco Giovanni, Bruni Angelo, Nardone Olga, Lopetuso Loris Riccardo
42	Cyclic vomiting syndrome (CVS): opioids out, tricyclic antidepressants (TCAs) in	Management	Butt Mohsin Faysal	Cefalo Francesca, Sbarigia Caterina, Dhali Arkadeep, Corsetti Maura
43	Europe's first multidisciplinary training course on disorders of gut-brain interaction for undergraduate students	Management	Butt Mohsin Faysal	Dhali Arkadeep, Scotto Daniele, Gilmartin Christopher, Srichawla Bahadar, Singhal Sumeet, Gonem Sherif, Monaghan Tanya, Frain John, Corsetti Maura

44	Biofeedback outcomes in refractory constipation patients with abnormal balloon expulsion test	Management	Christian Lambiase	Bellini Massimo, Corsetti Maura, Rettura Francesco, Popa Stefan Lucian, Morganti Riccardo, Tedeschi Riccardo, Grosso Antonio, De Bortoli Nicola, Chiarioni Giuseppe
45	Evaluation of a modified London Protocol featuring only two pushes to diagnose defecation disorders with high-definition anorectal manometry	Management	Christian Lambiase	Tedeschi Riccardo, Grosso Antonio, Rettura Francesco, Cancelli Lorenzo, Bottari Andrea, Corsetti Maura, de Bortoli Nicola, Bellini Massimo
46	Effectiveness and economic burden impact of a microbial signature fecal test on the diagnosis of Irritable Bowel Syndrome	Management	Xavier Aldeguer Manté, Josep Oriol	Soriano Nogales Paula, Albert Carrasco Marc, Sabat Mir Miriam, Aldeguer Manté Xavier, Santos Javier
47	Exploring adherence to dietary interventions in relation to symptom improvement in patients with irritable bowel syndrome	Management	Sanna Nybacka	Störsrud Stine, Weznaver Cecilia, Törnblom Hans, Simrén Magnus
48	Perceived knowledge of use of probiotics in irritable bowel syndrome: a cross sectional survey about the tandem-talk between general practitioners and specialists	Management	Emanuele Sinagra	Raimondo Dario, Maida Marcello, Mandarino Francesco Vito, Costanzo Daniele, Cimino Viviana, Giordano Laura, Rossi Francesca, Manfredi Guido, Sferrazza Sandro, Conoscenti Giuseppe, Di Ganci Simona, Leanza Silvana, Coco Danilo
49	Fecal Microbiota Transplantation through colonoscopy for the management of severe refractory irritable bowel syndrome: Preliminary results.	Management	Christian von Muhlenbrock	Pacheco Nicole, Nunez Paulina, Herrera Karin, Quera Rodrigo
50	The role of salience network activation in perceiving urgency to defecate	Pathophysiology	Nawroz Barazani	Sjödahl Jenny, Orell Gustav, Tellman Jens, Adjeiwaah Mary, Engström Maria, Lundberg Peter, Walter Susanna
51	Mechanistic analysis of factors associated with post COVID-19 IBS occurrence	Pathophysiology	Keren Hod	Hod Keren, Giovanni Marasco, Cesare Cremon, Raffaella Barbaro Maria, Cacciari Giulia, Falangone Francesca, Kagramanova Anna, Bordin Dmitry, The GI COVID study group, Giovanni Barbara
52	Colonic volumes in irritable bowel syndrome and healthy individuals; the associations with symptoms and gut physiology	Pathophysiology	Tom van Gils	Mark Esben B, Törnblom Hans, Drewes Asbjörn M, De Jonge Catharina S, Simren Magnus
53	Differences in symptoms and gut physiology between irritable bowel syndrome subgroups identified by mixture model analysis	Pathophysiology	Tom van Gils	Algera Joost P, Midenfjord Irina, Törnblom Hans, Simren Magnus
54	Long-term effects of dietary interventions on fecal microbiota composition in patients with irritable bowel syndrome	Translational Science	Bani Ahluwalia	Nybacka Sanna, Törnblom Hans, Störsrud Stine, Simren Magnus
55	Loss of vascular barrier integrity is associated with symptoms in irritable bowel syndrome	Translational Science	Maria Raffaella Barbaro	Cremon Cesare, Marasco Giovanni, Guglielmetti Simone, Valente Sabrina, Pasquinelli Gianandrea, Vergnolle Nathalie, Stanghellini Vincenzo, Collins Stephen, Barbara Giovanni
56	Effect of <i>Pediococcus acidilactici</i> CECT7483, <i>Lactopantibacillus plantarum</i> CECT7484 and <i>Lactopantibacillus plantarum</i> CECT7485 on permeability alterations induced by irritable bowel syndrome mediators: a transcriptomic and metabolomic study	Translational Science	Francesca Bianco	Maria Raffaella Barbaro, Bianco Francesca, Cremon Cesare, Marasco Giovanni, Espadaler Mazo Jordi, Stanghellini Vincenzo, Barbara Giovanni
57	Chitin-glucan in IBS: from bench to bedside	Translational Science	Benoit Palms	Dubuquoy Caroline, Chavatte Philippe, Genin Michel, Maquet Véronique, Modica Salvatore, Tack Jan, Rousseaux Christel, Group Gastrap Study, Palms Benoit
58	In-vitro modelling of the human gut microbiome to study intestinal health and disease	Translational Science	Angela Horvath	Pacher Christian, Kofler Selina, Balazs Irina, Horvath Angela, Stadlbauer Vanessa

LECTURES



JAN TACK

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BIOSKETCH

Professor Jan Tack is currently Chairman of the Gastroenterology and Hepatology Division in Leuven University Hospitals, a Professor in Internal Medicine, former Chairman of the Department of Clinical and Experimental Medicine at the University of Leuven, Belgium, a founding researcher of TARGID (the Translational Research Center for Gastrointestinal Disorders) at the University of Leuven and President of the Rome Foundation.

He graduated summa cum laude in 1987 from the University of Leuven and specialised in internal medicine and gastroenterology at the same institution. After a research stay at the Department of Physiology at the Ohio State University, Columbus, Ohio, USA, from 1989 to 1990, he has been conducting research at Leuven University since 1990.

Professor Tack's scientific interest focuses on Neurogastroenterology and Motility, and includes diverse topics such as the pathophysiology and management of gastrointestinal functional and motor disorders such as gastroesophageal reflux disease, functional dyspepsia, gastroparesis, chronic constipation and the irritable bowel syndrome, the physiology and pharmacology of the enteric nervous system, gastrointestinal hormones and the control of satiation and food intake. With an h-index of 111, he has published more than 980 peer-reviewed articles in the international literature, with over 45000 citations, and he contributed more than 45 book chapters on various aspects of scientific and clinical gastroenterology. He has co-authored publications in all leading Gastroenterology journals, and several high-ranked general scientific journals (e.g. New England Journal of Medicine, Journal of Clinical Investigation, Nature genetics, PNAS, JAMA, Gastroenterology, Gut, Nature Reviews Gastroenterology Hepatology, ...). Professor Tack was the promotor of more than 45 Ph.D. fellows. He currently supervises a research group which comprises 10 Ph.D. fellows, 2 postdocs and 3 technical/support staff.

Professor Tack has won several awards for basic and clinical research in gastrointestinal science. He was awarded with the national G. Brohé prize for gastrointestinal research in 1994, the Belgian Baron Simonart prize in 1999, the Biotherabel-AstraZeneca prize for Gastrointestinal Research and the Paternoster & Vantrappen prize for Neurogastroenterology in 2000, the international Janssen Award for Basic and Clinical Research in Gastrointestinal Science in 1999, the international International Janssen Award for Neurogastroenterology and Motility in 2004, the IFFGD Clinical Researcher prize in 2013, with the Research Prize of United European Gastroenterology in 2015 and with the International Falk Foundation Gastroenterology Research prize as well as the UEG lifetime achievement award in 2023.

Professor Tack is currently president of the Rome Foundation and a council member and president of the European Association for Gastroenterology, Endoscopy and Nutrition. He was the founding Editor-in-Chief of the United European Gastroenterology Journal. He has served as President of the European Society of Esophagology, President of the International Society for Diseases of the Esophagus and member of the Steering Committee of the European Society for Neurogastroenterology and Motility and has served as (co-)editor for *Neurogastroenterology and Motility*, *Gastroenterology*, *Gut* and *Digestion*. He serves or has served as a member of the Editorial Board of *Gastroenterology*, the *American Journal of Gastroenterology*, *Alimentary Pharmacology and Therapeutics*, the *Journal of Internal Medicine*, *Baillière's Best Practice* and *Research in Clinical Gastroenterology*, *Annals of Gastroenterology* and the *Journal of Gastroenterology*.

ABSTRACT

History and symptom assessment in IBS**Jan Tack¹⁻⁴**¹The Rome Foundation for Disorders of Gut Brain Interactions²Division of Gastroenterology and Hepatology, Leuven University Hospitals, Leuven, Belgium³Translational Research Center for Gastrointestinal Disorders (TARGID), Department of Chronic Diseases and Metabolism, University of Leuven, Belgium⁴Institute of Medicine, University of Gothenburg, Sweden

The diagnosis of the irritable bowel syndrome (IBS) in clinical practice, is founded on good, focused history taking and clinical examination, and carefully selected cost-effective additional technical examinations.

In terms of history taking, the interaction should start with active listening for at least 2 minutes which gives the patient the feeling of being heard. If not clearly shared by the patient's reporting, the clinician should seek to elicit the presence of cardinal symptoms of pain, discomfort and their relationship to bowel movements. The exact location of pain or discomfort (upper or lower abdomen, central or more lateral) is important, as well as its timing. Nocturnal symptoms are not a typical feature of IBS. Establishing the relationship of pain/discomfort with the bowel habit is relevant and supportive of IBS if pain/discomfort is either relieved or – less frequently – aggravated by defecation or if it is associated with changes in stool frequency and consistency. In most patients, either bloating or distention will also be present and the relationship to pain or discomfort should be addressed. It is also important to ask about straining, sense of incomplete defecation and also the occurrence of soiling or fecal incontinence. Besides the nature of symptoms, their duration and any potential symptom triggers are important elements. A longer duration of symptoms is more supportive of a non-organic cause. Most important in evaluation the risk of organic disease is checking for the presence of alarm or risk factors. The main ones are an age above the threshold for colorectal cancer screening, the presence of unintentional weight loss, nocturnal symptoms, blood in the stools, recent onset of symptoms and a family history of GI cancer, IBD, celiac disease. It is also important to know the worries or expectations that made the patient decide to seek medical care.

In terms of lifestyle or confounding factors, it is important to evaluate recent changes in diet, excessive alcohol consumption, and the use of drugs that can alter gut motility, especially opioids. A dietary history to document recent dietary changes, intake of poorly absorbable carbohydrates or food avoidance habits are all relevant. Especially (self-initiated) elimination of wheat, gluten, lactose and legumes are relevant to future therapeutic management.

It is also important to briefly but systematically address co-existing gastrointestinal (especially dyspepsia, reflux symptoms) and non-gastro-intestinal (back ache and other musculoskeletal issues, fatigue, urinary, gynaecological complaints) symptoms as well as current or previous psychosocial issues such as sleep quality, anxiety or depression. In an appropriately trustful setting, usually not at the first visit, a history of physical, sexual or psychological trauma can be assessed. In addition to obtaining a comprehensive clinical history, conducting a thorough physical exam is a critical component of the diagnostic process for IBS.

In conclusion, history and symptom assessment are the key to successful IBS patient management.

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CESARE CREMON

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Cesare Cremon graduated Summa cum Laude in Medicine at the University of Bologna, Italy. He subsequently qualified in Internal Medicine at the same University. Currently he is involved in clinical gastroenterology diagnostic and therapeutic endoscopy, teaching and research at the Bologna University Hospital Authority St. Orsola-Malpighi Polyclinic.

Cesare Cremon's main research interest related to basic and clinical aspects as well as treatment of functional and organic gastrointestinal disorders, neurogastroenterology, gut microbiota, and diverticular disease. He has authored more than 100 indexed peer-reviewed articles and reviews on these topics (global Impact Factor: more than 750 points; Google Scholar H-INDEX: 44), published in various biomedical journals, including Gastroenterology, Gut, American Journal of Gastroenterology, and Alimentary Pharmacology and Therapeutics. He is, or has been, referee for several biomedical journals, including Annals of Internal Medicine, Gut, Nature Review Gastroenterology and Hepatology, Alimentary Pharmacology and Therapeutics, Inflammatory Bowel Diseases, Neurogastroenterology and Motility, and Digestive and Liver Disease. He is actually secretary of the Italian Society of Neurogastroenterology and Motility (SINGEM), and a member of the following society: Società Medico-Chirurgica di Bologna, Italian Society of Gastroenterology (SIGE), Italian Group for the Study of Gastrointestinal Motility (GISMAD), now Italian Society of Neurogastroenterology and Motility (SINGEM). Cesare Cremon has received national and international awards including the best communication of 10th and 13th Italian Congress GISMAD (2002 - 2008), best poster communication at the 111^o Congress (2010) of the Italian Society of Internal Medicine (SIMI), and poster of distinction at Digestive Disease Week 2013, Orlando, FL, USA. He is in the list of top Italian Scientist in Clinical Sciences, Area: Gastroenterology; Rank: 844.

ABSTRACT

Diagnostic tests: when and which

Although the management of irritable bowel syndrome (IBS) remains a challenge also for gastroenterologists, its diagnostic process is relatively simple and based on 4 key features (1), including: clinical history, focused on key abdominal symptoms and their duration, bowel habits (frequency and stool consistency), concomitant treatments and comorbidities; physical examination; limited number of laboratory tests; and, when clinically indicated, a colonoscopy or other appropriate tests (1). In particular, in the absence of alarm features (the so-called red flags) and when diagnostic criteria are fulfilled, a positive diagnosis should be made and the need for diagnostic tests should be minimal in the majority of patients (1,2). In fact, an extensive diagnostic testing generally does not lead to a significant improvement in outcomes. Although IBS is still viewed by many physicians (both general practitioners and specialists) as a diagnosis of exclusion after performing multiple tests (2), all the main international guidelines suggest a positive diagnostic approach using Rome criteria as a cost-effective strategy for patients with IBS symptoms to minimize the economic burden of this condition (1, 3-7).

If not previously performed, limited laboratory tests should be required in all patients with IBS (1, 3-7), including: a complete blood count (CBC), since the presence of anemia or an elevated white blood cell count warrants further investigation; C-reactive protein (CRP) and fecal calprotectin to rule out conditions with symptoms that may mimic IBS such as inflammatory bowel disease (IBD), particularly in patients with symptoms suggestive of non-constipated IBS; serological testing for celiac disease (CD) using tissue transglutaminase IgA or, in the setting of IgA deficiency, another test such as tissue transglutaminase IgG or deamidated gliadin peptide IgG. Based on the potential overlap between CD and IBS symptoms and the consequences of a delayed diagnosis of CD, all the international guidelines recommend serological testing for CD to rule out this condition in patients with IBS symptoms and diarrhea (1, 3-7). Some guidelines suggest these tests in all patients with IBS irrespective of bowel habits, particularly if the prevalence of CD in the population is >1% (as in Italy) (5, 7). Upper endoscopy with duodenal biopsies should be performed only in the cases that tests are positive.

Colonoscopy is often prescribed and overused in patients with IBS symptoms; however this diagnostic procedure should be indicated only in presence of alarm features or according to local colorectal cancer-screening programs (8, 9). In fact, routine colonoscopy in IBS not only is without significant benefits but also increases health care costs and exposure to procedural and sedation risks (8, 9). Conversely, colonoscopy is indicated in the presence of alarm symptoms or signs, a family history of colorectal cancer and persistent diarrhea that fails empiric therapy (8, 9). In the latter case, biopsies of the distal ileum and different segments of the colon should be performed to rule out an unrecognized Crohn's disease or microscopic colitis. The prevalence of misleading IBD and colorectal cancer is higher in patients with IBS symptoms and alarm features as compared with those without red flags (10).

As bile acid malabsorption may be the cause of persistent diarrhea in a significant proportion of patients with IBS symptoms (11), if empiric treatment fails, based on local availability, diagnostic options include: scintigraphic evaluation (75SeHCAT test); postprandial serum C4 (7 α -hydroxy-4-cholesten-3-one) or fibroblast growth factor 19 (1, 7). However, none of these tests are currently widely available.

Stool testing for enteric pathogens or diagnostic tests for food and lactose intolerance, food allergies or small intestinal bacterial overgrowth are not routinely recommended in patients with IBS symptoms, although these tests may be useful in some patients with persistent and severe symptoms unresponsive to multiple lines of treatment (1, 3-7).

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JOHANN HAMMER

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BIOSKETCH

Dr Johann Hammer studied medicine at the University of Graz. He completed his clinical training as a specialist in internal medicine and later in gastroenterology and hepatology at the Mayo Clinic, Rochester MN, USA (1990-1992) and the Medical University of Vienna, General Hospital and has been an associate university professor since 1999. He was Head of the Department of Interventional Endoscopy in the Barmherzige Schwestern Hospital in Vienna, and worked at the University of Sydney (1998-1999) and the University of Queensland (2015), where he also was appointed associate professor. His clinical interests include gastrointestinal disorders, functional diagnostics, interventional endoscopy and nutritional medicine..

ABSTRACT

Role of Breath Testing

A substantial portion of individuals diagnosed with lactose malabsorption fail to experience significant relief from a lactose-free dietary regimen. Malabsorption may be just one of the factors that lead to the onset of symptoms following lactose consumption. This insight is crucial for both the diagnosis and treatment of lactose intolerance, as well as other carbohydrate intolerances. The use of a reliable and valid, test specific questionnaire is crucial to provide unbiased diagnosis of carbohydrate intolerance. Such an instrument can be used in conjunction with a breath test, which is necessary if lactose malabsorption is to be detected.

POSTGRADUATE COURSE



MAURA CORSETTI

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BIOSKETCH

Maura received her residency (2000) and PhD (2004) from the University of Milan in Italy. She worked for eight years as a referral consultant for functional bowel disorders at one of the leading university hospitals in Milan, San Raffaele University Hospital. She then moved to Belgium, where she also spent part of her PhD, to work in Prof. Jan Tack's laboratory as Senior Research Supervisor (2012-2016).

In 2016, she was appointed Associate Professor of Gastroenterology with Honorary Contract as Consultant Gastroenterologist at NHS. Maura directs the Neurogastroenterology Unit and the GI Motility lab and is a referring consultant for functional disorders of the upper and lower gastrointestinal tract at the Nottingham Digestive Diseases BRC. She has devoted her professional career to the study of the role of gastro-intestinal (GI) motility in the pathophysiology of symptoms of functional disorders, becoming an internationally recognized expert in GI motility. She is a member of the Rome Foundation Board of Directors, Co-Chair of the Rome V Committee on Functional Bowel Disorders, and Editor-in-Chief of Neurogastroenterology and Motility (official journal of the European and American Association of Neurogastroenterology and Motility). She is Chair of the BSG Neurogastroenterology Committee and ESNM representative to the Scientific Committee and Postgraduate Teaching Course at UEG.

ABSTRACT

Treatment of abdominal pain

Irritable bowel syndrome is a disorder of the gut-brain axis with a prevalence ranging from 5 to 10% depending on the type of Rome criteria applied. It is a chronic condition characterized by recurrent episodes of abdominal pain associated with altered bowel habits. It may present with constipation, diarrhea or alternating bowel habits.

The key aspect is the presence of defecation-related abdominal pain, which means that the pain may be relieved or aggravated by defecation or worsen when the patient reports diarrhea, constipation or alternating bowel habits. This characteristic poses some challenges in clinical practice, as it is sometimes difficult to find a balance between treating pain and worsening altered bowel habits.

Treatment of irritable bowel syndrome starts with explaining the condition and suggesting changes in lifestyle and diet. When this is not sufficient, more specific diets, such as the low fermentable oligo-, mono-, di-saccharides, and polyols (FODMAP) diet, may be recommended. First-line pharmacological treatment (antispasmodics, laxatives, anti-diarrheal, neuromodulators, secretagogues) is reserved for patients who do not respond to lifestyle and dietary advice.

The lecture will discuss the currently available treatment options for abdominal pain, providing some pragmatic suggestions for clinical practice.

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BIOSKETCH

Carmelo Scarpignato graduated in Biochemistry at the University of Messina, and in Medicine and Surgery at the University of Modena in Italy. He is currently Professor of Medicine & Clinical Pharmacology at the Faculty of Health Sciences, LUdeS Lugano Campus, Switzerland & United Campus of Malta, Msida, Malta as well as Associate Professor of Gastroenterology at University of Nantes. He is also Honorary Clinical Professor at Chinese University of Hong Kong and Consultant Clinical Pharmacologist & Gastroenterologist. He has been Visiting Professor at some prestigious European and USA Universities.

Professor Scarpignato's main research interests focus on digestive clinical pharmacology, gastrointestinal motility, and upper GI pathophysiology as well pain medicine. He has authored more than 500 publications (of which 350 are full papers or book chapters) on these topics and has also edited 28 books on clinical evaluation of GI function and on Pharmacology & Therapeutics of Digestive Diseases. He is or has been on the editorial boards of Pharmacology, Gut, Digestion, Digestive Diseases, Current Gastroenterology Reports, Alimentary Pharmacology & Therapeutics, BMC Gastroenterology, BMC Medicine, World Journal of Gastroenterology, American Journal of Pharmacology & Therapeutics, Therapeutic Advances in Drug Safety and Current Clinical Pharmacology, amongst others. He is also a Section Editor (GI and Liver Pharmacology) of Fundamental and Clinical Pharmacology and of Gastroenterology International, and has been co-Editor of two prestigious book series, Frontiers of Gastrointestinal Research and Progress in Basic and Clinical Pharmacology.

Professor Scarpignato is a Fellow of the Royal College of Physicians (London), the American College of Physicians, the American College of Clinical Pharmacology, the American College of Gastroenterology and of the American Gastroenterological Association. In addition, he has been recognized Fellow of the European Board of Gastroenterology & Hepatology, besides being member of several national and international scientific societies, including the New York Academy of Sciences and the EU Academy of Sciences. He has been the Past Governor for Italy of the American College of Gastroenterology (ACG) and is presently the At-large Member, Governing Board of the World Organization for Specialized Studies on Diseases of the Oesophagus (OESO).

ABSTRACT

Treatment of constipation in IBS

Irritable bowel syndrome with constipation (IBS-C) occurs more commonly in women than in men, and frequently includes additional symptoms such as abdominal bloating and discomfort, hard stools, straining, and sensation of incomplete evacuation [1].

According to Rome IV criteria [2], IBS-C can be distinguished from functional constipation (FC), with the presence of abdominal pain being the discriminating factor for IBS-C. However, considerable symptom overlap and disease burden occurs between the two conditions, and many patients may alternate between C-IBS and FC at different points in their lives, making it difficult to distinguish between them [3]. These similarities have led to the suggestion that these conditions exist along a spectrum of disease, with the

presence of abdominal symptoms indicating disease severity rather than defining two separate conditions [3]. As a consequence, several drugs recently introduced in clinical practice proved effective either in C-IBS and FC and are approved by the Food and Drug Administration (FDA) for both conditions [4]. Evaluation of drug efficacy remains however challenging. Indeed, in IBS-C, placebo response rates are high, reaching up to some 35% for some end-points, even in RCTs adhering to current FDA-recommended endpoints [5].

The methodology used in randomized controlled trials (RCTs) to evaluate the efficacy of medications for treating C-IBS has evolved over the past two decades [6]. The FDA published guidance for industry on the clinical evaluation of products for the treatment of IBS in May 2012 [7]. This guidance recommends that studies of therapies for IBS use a composite primary endpoint, assessing both improvements in abdominal pain and abnormal defecation. For both IBS-D and IBS-C, abdominal pain is recommended to be assessed by asking patients daily to rate their worst abdominal pain over the past 24 h using an 11-point (i.e., 0–10) numeric rating scale. For C-IBS, the defecation component should be an assessment of stool frequency as measured by number of complete spontaneous bowel movements (CSBMs) per week.

Although in the past IBS therapy has mostly been driven by the prevailing symptom, the availability of new drugs has recently allowed to target the entire symptom complex. With exception of laxatives, almost all the currently available therapies improve constipation, but are effective also on associated symptoms, like abdominal pain, bloating and distension.

Besides macrogol (an osmotic laxative), which only improves bowel movements but not symptoms and is recommended by European but not North American guidelines, current treatments rely on intestinal secretagogues (chloride channel activators, guanylyl cyclase-C agonists, and sodium-hydrogen exchanger isoform 3 inhibitors) and prokinetics (tegaserod and prucalopride).

A network meta-analysis of RCTs [8] found all secretagogues to be superior to placebo. As a consequence, they are strongly recommended by ACG and Italian guidelines [9, 10]. Linaclotide (290 µg once daily) was ranked first in efficacy based on the FDA-recommended primary end points (abdominal pain and complete spontaneous bowel movements) while tenapanor (50 mg twice daily) was ranked first for decreasing bloating.

For tegaserod, a partial 5-HT₄-agonist once again approved for use in IBS-C under a more restricted labeling (women under the age of 65 without heart disease or additional cardiovascular risk factors) [11], the odds ratios for clinical response (pooled from 4 RCTs) during the last 4 weeks in the overall and restricted populations were 1.37 (1.18–1.59; $p < 0.001$) and 1.38 (1.18–1.61; $p < 0.001$), respectively [12]. In an updated network meta-analysis including 3 RCTs with tegaserod (6 mg twice daily), this prokinetic ranked third (after linaclotide and tenapanor), when the indirect evidence for failure to achieve the FDA-recommended endpoint was adopted as an outcome [13]. It is worthwhile mentioning that the FDA guidance was available for the approval process in IBS-C of linaclotide (approved in 2012), plecanatide (approved in 2018), and tenapanor (approved in 2019), as well as the re-approval of tegaserod in IBS-C in 2019. However, some trials assessing these therapies, as well as the approval of lubiprostone, predate the FDA guidance. The lack of consistent endpoints and head-to-head trials makes comparison of efficacy between drugs difficult. However, the recent network meta-analyses have sought to overcome this barrier.

Prucalopride is effective (and approved) for treatment of chronic constipation and is able to reduce abdominal symptoms after intestinal gas challenge in women with functional bowel disorders [14]. It may well be employed in IBS-C. In this connection, a small South American trial [15] found that prucalopride and tegaserod improve similarly all the evaluated symptoms in patients with IBS-C, although the former appeared more effective on abdominal pain.

Although drug therapy is efficacious, dietary intervention should not be overlooked. The AGA Clinical Practice Update and the 2021 ACG Guidelines make a strong recommendation for the use of soluble (but not insoluble) fiber for the treatment and improvement of global symptoms in IBS-C [9, 16]. A multicenter study [17] compared green kiwifruit with a comparable dose of psyllium in patients with FC and C-IBS and

showed a better improvement in CSBM frequency with kiwifruit. The increase in weekly CSBMs was greater than the increase used in regulatory studies of pharmaceutical agents for chronic constipation (>1 CSBM per week). Also, the GI comfort level in patients with C-IBS improved more with kiwifruit than with psyllium. Together with fibers (many of which are prebiotics), probiotics and non-absorbable antibiotics are effective means to target gut microbiota in patients with C-IBS. A recent meta-analysis [18] found that - compared to the placebo - probiotics significantly improved stool consistency and increased the number of fecal *Bifidobacteria* and *Lactobacillus*. However, the quality of evidence is low for most studies, and the overall evidence is hampered by a significant heterogeneity between studies and a large risk of bias. It remains difficult however to interpret the results of probiotic studies due to the variety of strains, species, treatment duration, and amount of living microorganisms administered. Anyway, the overall conclusions from systematic reviews and meta-analyses show a positive trend, with more favorable outcome with multi-strain probiotics [19].

Although FDA-approved for D-IBS, there is also a rationale for rifaximin use in C-phenotype. Indeed, this non-absorbed, GI-targeted antibiotic improves constipation in patients with C-IBS and FC by reducing breath methane and colonic transit time (CTT) [20]. Methane-positive breath tests are indeed significantly more prevalent in C-IBS-compared with D-IBS [21] and are significantly associated with constipation in both IBS and FC [22]. In addition, antibiotic therapy causes a rise in mean stool weight in patients on a constant fiber intake, most likely because of reduced fiber degradation, consequent to the decline in bacterial populations, contributing in this way to the improvement of constipation [23].

A recent systematic review with meta-analysis [24] found that IBS patients may benefit from fecal microbiota transplantation (FMT), when administered via gastroscopy or nasojejunal tube, and that FMT is overall safe, with subtype playing an important role in the outcome. Patients with constipation appear to more likely benefit from FMT compared to other subtypes.

Despite recent advances in IBS-C treatments, there are still some unmet clinical needs. Indeed, a US survey found that only one in four individuals was “very satisfied” with FDA-approved prescription therapies [25]. In this connection, several new drugs (mainly new secretagogues) are under active development. Elobixibat is an ileal bile acid transporter (IBAT) that increases bile acid concentration in the gut and accelerates colonic transit while mizaglifozin is a sodium-glucose co-transporter 1 inhibitor that decreases intestinal fluid absorption, thereby increasing colonic fluid secretion. Both compounds are able to increase spontaneous bowel movement frequency [26]. These new drugs with alternative mechanisms of action will represent additional tools to address the diverse pathophysiology of IBS-C.

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BIOSKETCH

Brian E. Lacy, Ph.D., M.D., FACP is currently Professor of Medicine and Consultant at Mayo Clinic Jacksonville. He is the Program Director of the GI Fellowship, and is Associate Program Director for Scholarly Activities for the Medical Residency Program. He is the author of over 240 peer-reviewed articles on gastrointestinal motility disorders and functional bowel disorders, in addition to multiple textbook chapters. He is the former Editor in Chief of the American Journal of Gastroenterology and former Editor of Clinical and Translational Gastroenterology. Dr. Lacy was the co-Chairman for the Rome IV Committee on Functional Bowel Disorders. He is on the Board of Trustees for the Rome Committee.

ABSTRACT

Treatment of diarrhea in IBS-D

Irritable bowel syndrome is one of the most common disorders of gut-brain interaction (DGBI). The world-wide prevalence ranges from approximately 5-10%, depending upon which definition is used (the Rome IV criteria are stricter than the Rome III criteria). Approximately one-third of all IBS patients are accurately classified as IBS with diarrhea predominance (IBS-D). Chronic symptoms of abdominal pain, diarrhea, bloating lead to a significant reduction in quality of life and are associated with increased healthcare costs. The exact pathophysiology of IBS remains to be elucidated, but it is related in part to alterations in the gut microbiota, changes in gastrointestinal motility, microscopic inflammation, bile acid malabsorption, and alterations in the enteric nervous system. Given the multifactorial nature of IBS, no gold standard of treatment exists. Available treatments for IBS-D include dietary modification, probiotics, serotonin (5-hydroxytryptamine) receptor antagonists (e.g., alosetron, ondansetron), opioid receptor agonists and antagonists (e.g., loperamide, eluxadoline, non-systemic antibiotics (e.g., rifaximin), bile acid sequestrants (e.g., cholestyramine, colesevelam), antidepressants/neuromodulators (e.g., tricyclic antidepressants, selective serotonin reuptake inhibitors), and complementary and alternative medicine (e.g., herbal therapies, mind-body interventions [e.g., cognitive behavioural therapy, hypnotherapy], mechanical interventions [e.g., yoga, acupuncture]). No validated treatment algorithm currently exists for patients with IBS and diarrhea and thus a variety of treatments are frequently used to manage symptoms. The lecture on the treatment of IBS with diarrhea will provide a state of the art review on the different diets and therapeutic agents used to treat IBS D symptoms with an emphasis on high quality, randomized control trials.

MEETING



JAN TACK

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Professor Jan Tack is currently Chairman of the Gastroenterology and Hepatology Division in Leuven University Hospitals, a Professor in Internal Medicine, former Chairman of the Department of Clinical and Experimental Medicine at the University of Leuven, Belgium, a founding researcher of TARGID (the Translational Research Center for Gastrointestinal Disorders) at the University of Leuven and President of the Rome Foundation.

He graduated summa cum laude in 1987 from the University of Leuven and specialised in internal medicine and gastroenterology at the same institution. After a research stay at the Department of Physiology at the Ohio State University, Columbus, Ohio, USA, from 1989 to 1990, he has been conducting research at Leuven University since 1990.

Professor Tack's scientific interest focuses on Neurogastroenterology and Motility, and includes diverse topics such as the pathophysiology and management of gastrointestinal functional and motor disorders such as gastroesophageal reflux disease, functional dyspepsia, gastroparesis, chronic constipation and the irritable bowel syndrome, the physiology and pharmacology of the enteric nervous system, gastrointestinal hormones and the control of satiation and food intake. With an h-index of 111, he has published more than 980 peer-reviewed articles in the international literature, with over 45000 citations, and he contributed more than 45 book chapters on various aspects of scientific and clinical gastroenterology. He has co-authored publications in all leading Gastroenterology journals, and several high-ranked general scientific journals (e.g. New England Journal of Medicine, Journal of Clinical Investigation, Nature genetics, PNAS, JAMA, Gastroenterology, Gut, Nature Reviews Gastroenterology Hepatology, ...). Professor Tack was the promotor of more than 45 Ph.D. fellows. He currently supervises a research group which comprises 10 Ph.D. fellows, 2 postdocs and 3 technical/support staff.

Professor Tack has won several awards for basic and clinical research in gastrointestinal science. He was awarded with the national G. Brohé prize for gastrointestinal research in 1994, the Belgian Baron Simonart prize in 1999, the Biotherabel-AstraZeneca prize for Gastrointestinal Research and the Paternoster & Vantrappen prize for Neurogastroenterology in 2000, the international Janssen Award for Basic and Clinical Research in Gastrointestinal Science in 1999, the international International Janssen Award for Neurogastroenterology and Motility in 2004, the IFFGD Clinical Researcher prize in 2013, with the Research Prize of United European Gastroenterology in 2015 and with the International Falk Foundation Gastroenterology Research prize as well as the UEG lifetime achievement award in 2023.

Professor Tack is currently president of the Rome Foundation and a council member and president of the European Association for Gastroenterology, Endoscopy and Nutrition. He was the founding Editor-in-Chief of the United European Gastroenterology Journal. He has served as President of the European Society of Esophagology, President of the International Society for Diseases of the Esophagus and member of the Steering Committee of the European Society for Neurogastroenterology and Motility and has served as (co-)editor for *Neurogastroenterology and Motility*, *Gastroenterology*, *Gut* and *Digestion*. He serves or has served as a member of the Editorial Board of *Gastroenterology*, the *American Journal of Gastroenterology*, *Alimentary Pharmacology and Therapeutics*, the *Journal of Internal Medicine*, *Baillière's Best Practice and Research in Clinical Gastroenterology*, *Annals of Gastroenterology* and the *Journal of Gastroenterology*.

ABSTRACT

Rome Foundation related activities

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The mission of the Rome Foundation is to improve the lives of people with Disorders of Gut Brain Interaction. This includes, 1) Promoting global recognition and legitimization of DGBI, 2) Advancing the scientific understanding of their pathophysiology, 3) Optimizing clinical management for these patients and 4) Developing and providing educational resources to accomplish these goals.

The current activities of the Rome Foundation will be reviewed. These comprise the ongoing analysis and publications related to the Global Epidemiology Study, activities of the Rome Foundation Research Institute (RFRI), creating and presenting Innovative educational programs for Gastroenterologists, primary care physicians and other Allied health providers, activities to promote Patient-Physician Communication, Research and Clinical Awards and Rome Fellowships, Rome Working teams and especially ongoing work for the Rome V consensus.

MEETING



AMI SPERBER

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Dr. Ami D. Sperber is Emeritus Professor of Medicine in the Faculty of Health Sciences of Ben-Gurion University of the Negev, Israel. He was born and raised in New York City and immigrated to Israel at the age of 23. In 1981 he received his MD degree in Israel and in 1992 he completed an MSPH (Master of Science in Public Health) degree from the Department of Health Behavior and Health Education in the School of Public Health of the University of North Carolina at Chapel Hill.

In addition to patient care, Dr. Sperber has conducted extensive research on IBS and the other DGBI including (a) the local and global epidemiology of IBS and other DGBI, (b) co-morbidity in DGBI, in particular sleep impairment and fibromyalgia, and (c) psychosocial aspects of DGBI. He is the author of a book, in Hebrew, on IBS for the general public in Israel, which emphasizes the biopsychosocial approach to diagnosis and treatment and presents an empathetic description of the disorder, its diagnosis and treatment. The book was translated into English and is available as an e-book on Amazon.

Dr. Sperber has led the Rome Foundation global initiative since its inception. In 2011 he initiated and co-chaired the first international symposium on IBS-the Global Perspective. He chaired the RF Working Team on Multinational, Cross-cultural Research, which published its final report in January 2014 and has published three papers. He chaired the Rome IV chapter committee on Cross-cultural factors in FGIDs. He currently chairs the Executive Committee of the Global Epidemiology study. Data collection was completed in 33 countries from around the world and, to date, 9 papers have been published from the study and over 30 more are in preparation.

He is now co-PI, together with Dr. Olafur Palsson, of the upcoming Rome V Validation and Epidemiology study.

He is the ongoing head of the Rome Foundation Translation Project.

Since 2014, Dr. Sperber has served as a member of the Rome Foundation Board of Directors since 2014, is a member of the RF Board's Executive Committee, and a member of the Rome V editorial board.

ABSTRACT

Rome V epidemiology study

The focus of this talk will be plans for Rome Foundation research related to the upcoming Rome V diagnostic criteria. It will begin with a short review of the Rome Foundation Global Epidemiology Study and how it serves as a basis for the next research steps. This will be followed by a description of ongoing studies designed to set the stage for and improve the Rome V study. Details of the new Rome V Validation and Epidemiology will be presented, with an emphasis on setting the foundations for clinical diagnostic criteria.



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ABSTRACT***Plausibility of pathophysiological mechanisms in IBS*****Jan Tack¹⁻⁴, M.D., Ph.D**¹The Rome Foundation for Disorders of Gut Brain Interactions²Division of Gastroenterology and Hepatology, Leuven University Hospitals, Leuven, Belgium³Translational Research Center for Gastrointestinal Disorders (TARGID), Department of Chronic Diseases and Metabolism, University of Leuven, Belgium⁴Institute of Medicine, University of Gothenburg, Sweden

Several putative pathophysiological mechanisms underlying symptom generation in IBS have been proposed, including disordered motility, visceral hypersensitivity, low-grade inflammation, altered microbiota, immune activation, adverse reactions to foods and central nervous system dysfunction (which may or may not be related to psychological dysfunction), etc. Despite the fact that these disturbances have been reported in patients with IBS, their relevance to symptom generation remains the subject of debate, in part because of the absence of a clearly established causal or even temporal relationship between symptoms and observed abnormal function, as well as the lack of treatments to specifically target the putative underlying mechanisms.

In 2017, a group of international experts including some Rome Board members published plausibility criteria for mechanisms in DGBI. The plausibility criteria are based on aspects such as presence, temporal association, correlation between level of impairment and symptom severity, induction in healthy subjects and treatment response or congruent natural history. In addition, a plausibility numerical score was proposed, based on the strength

of evidence. In collaboration with the International Motility Societies, the Rome Foundation set up a team of experts to evaluate and score the plausibility of 19 putative pathophysiological mechanisms in IBS symptom generation. The team has finalized its assessment toward the end of 2023 and manuscripts are currently being finalized. This approach provides a novel and critical review of our current DGBI disease concepts and establish the areas of knowledge and uncertainty.



LIN CHANG

Professor of Medicine and Vice-Chief of the Vatche and Tamar Manoukian Division of Digestive Diseases, Department of Medicine at the David Geffen School of Medicine at UCLA - USA

BIOSKETCH

Lin Chang, MD is a Professor of Medicine and Vice-Chief of the Vatche and Tamar Manoukian Division of Digestive Diseases at the David Geffen School of Medicine at UCLA. She serves as the Co-Director of the G. Oppenheimer Center for Neurobiology of Stress and Resilience and Director of the Clinical Studies and Database Core for the Goodman-Luskin Microbiome Center at UCLA. She is also the Program Director of the UCLA Gastroenterology Fellowship Program. Dr. Chang is a gastroenterologist and clinical investigator whose research focuses on brain-gut interactions underlying irritable bowel syndrome (IBS), including early adverse life events, stress, sex differences, gut microbiome, and the treatment of IBS. She serves on the Rome Foundation Board of Directors and is Associate Editor of *Gastroenterology*. She previously served as President of the American Neurogastroenterology and Motility Society (ANMS).

ABSTRACT

IBS-IBD overlap

Outcome of the Rome Foundation Working Team

IBS and IBD are gastrointestinal (GI) disorders that are associated with abdominal pain and discomfort and alteration in bowel habits associated with relapsing-and-remitting courses, psychological distress, and a significant impact on health-related quality of life.¹⁻³ IBS is a disorder of gut-brain interaction (DGBI) and currently diagnosed using symptom-based criteria with a worldwide prevalence of 4-11%.⁴ IBD is comprised of Crohn's disease (CD) and ulcerative colitis (UC), which are chronic, immune-mediated conditions manifesting as intestinal mucosal inflammation that affect over 1.5 million individuals in North America and 2 million individuals in Europe.⁵⁻⁷ Although IBS, particularly predominantly IBS with diarrhea (IBS-D), and IBD can present with similar symptoms, these conditions differ in their pathogenesis, with macroscopic colonic inflammation found in active IBD, but lacking in IBS. Interestingly, many patients with IBD continue to have symptoms even after the resolution of bowel inflammation, suggesting a common basis for some of the symptoms of both illnesses. There are potential shared pathophysiologic mechanisms that contribute to residual symptoms in IBD in remission and IBS.⁸ A systematic review and meta-analysis demonstrated that the prevalence of IBS-type symptoms among patients with IBD in remission was 32.5% (95% CI 27.4–37.9; $I^2=90.1\%$), ranging from 11.2% to 63.6% in individual studies. Prevalence was lowest when either endoscopic (23.5%, 95% CI 17.9–29.6; $I^2=59.9\%$) or histological assessment (25.8%, 20.2–31.7; $I^2=$ not applicable) was used to define remission.¹ Another meta-analysis of 17 studies that included 2608 patients with UC in clinical remission found that those who achieved histologic remission had a 63% lower risk of clinical relapse vs patients with persistent histologic activity (relative risk, 0.37; 95% CI, 0.24–0.56). The estimated annual risk of clinical relapse in those who achieved achieving histologic remission was 5.0% (95% CI, 3.3–7.7).⁹

Given the substantial variability in defining remission in IBD, a truly accurate estimate of the prevalence of IBS symptoms in patients with IBD in remission is not known. In addition, criteria that could be used to define overlapping IBS in the setting of IBD in remission needs to be established for clinical research studies and practice. These criteria would be of great interest in clinical research because this would allow a better assessment of treatment response to medications that reduce inflammation by excluding patients with overlapping IBD-IBS. In clinical practice, diagnostic criteria for overlapping IBD-IBS could change the treatment paradigm with the use of therapies that are effective in IBS, e.g., brain-gut neuromodulators and behavioral therapy.

A joint Rome Foundation and International Organization for the Study of Inflammatory Bowel Disease (IOIBD) Working Team Committee on Overlapping IBD-IBS has been established to critically review the existing literature, refine the nomenclature of “IBD-IBS overlap”, provide recommendations on the diagnostic criteria for overlapping IBD-IBS in clinical research, and provide recommendations on diet, pharmacologic and behavioral treatment approaches in order to improve symptoms in these patients.

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BIOSKETCH

Giovanni Barbara is Full Professor of Gastroenterology at the University of Bologna, Italy. He is currently Chair of Gastroenterology and vice Chair of the Department of Medical and Surgical Sciences at the same University. He graduated summa cum laude in medicine at the University of Bologna. He subsequently qualified in internal medicine and then gastroenterology at the same University. He was trained partly in London, UK and completed a post-doctoral research fellowship in neuro-immunology at McMaster University, Canada. Currently, he coordinates a large group of physicians, and scientists involved in the fields of clinical gastroenterology, advanced endoscopy, teaching and clinical as well as translational research.

Professor Barbara's main research interests relate to basic and clinical aspects of disorders of gut-brain interaction and neurogastroenterology, and he has authored numerous indexed peer-reviewed articles and reviews on these topics, published in various biomedical journals, including Gastroenterology, Gut, the Journal of Clinical Investigation and Trends in Pharmacological Sciences, Nature. He is, or has been, a member of the Editorial Boards of Gastroenterology, Gut, the American Journal of Gastroenterology, Neurogastroenterology and Motility, the American Journal of Physiology and other international scientific journals.

Professor Barbara has received national and international awards including those from the American Gastroenterological Association, the Functional Brain Gut Research Group, the European Society of Neurogastroenterology and Motility and the Master Award in Gastroenterology from the American Gastroenterological Association. He is currently member of the Board of Directors of the Rome Foundation, Past-President of the European Society of Neurogastroenterology and Motility (ESNM) and currently Chair of the Gut Microbiota and Health Section of ESNM.

ABSTRACT

Overlap of IBS with organic disorders

Following remission or during the quiescent phases of an inflammatory, infectious or immune mediated gastrointestinal disorder, a proportion of patients continues to experience symptoms that may fulfill criteria for irritable bowel syndrome (IBS) or other disorders of gut-brain interaction (DGBI).

About one in four patients with celiac disease experience IBS-type symptoms, which is almost six times higher than in controls. The odds of experiencing IBS-type symptoms were nearly four times higher in patients adhering to a gluten-free diet (GFD) and twelve times higher in those not adhering to a GFD compared to controls.

The pooled prevalence of IBS-type symptoms in patients with IBD in remission has been assessed to be 32.5% (95% CI 27.4-37.9). This prevalence was lower when remission was determined by endoscopic (23.5%) or histological assessment (25.8%) compared to validated clinical disease activity indices (33.6%) or fecal calprotectin <100mcg/g (35.1%). In addition, patients with Crohn's disease had a significantly higher prevalence of IBS-type symptoms compared to those with ulcerative colitis (34.9% vs. 28.9%), which may be partly due to conditions following ileal resection, such as bile acid diarrhea, small intestinal bacterial overgrowth, or adhesions.

Acute diverticulitis has also been associated with the development of IBS-like symptoms after resolution of colonic inflammation. A retrospective study reported a 1.8% prevalence of IBS at six years post-diverticulitis, which was 4.7 times higher than matched controls, while a more recent study found that 17.1% of patients experienced IBS symptoms after an acute diverticulitis episode.

Post-infection (PI)-IBS can develop following bacterial, viral, or parasitic gastroenteritis. The pooled prevalence of IBS has been found to be 10.1% at 12 months post-infection. More recently, PI-IBS has been observed after COVID-19 infection, with a meta-analysis reporting a 12% prevalence and a 6-13 times higher odds compared to controls.

The pathophysiological mechanisms underlying disorders of gut-brain interaction (DGBI) in organic disease remission are not fully understood but seem to align with the general model proposed for DGBI. These mechanisms include visceral hypersensitivity, dysmotility, increased epithelial permeability, neural, endocrine, and immune dysregulation, central sensitization, and changes in gut microbiota.

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BIOSKETCH

Dr. Sarah Ballou is the Director of GI Behavioral Health at Beth Israel Deaconess Medical Center and Assistant Professor of Medicine at Harvard Medical School. Her clinical interests focus on the application of brain-gut behavioral therapies in patients with chronic digestive disorders, especially disorders of gut brain interaction and inflammatory bowel diseases. Her research focuses on patient reported outcomes assessment in IBS, DGBI, and IBD.

Dr. Ballou received her PhD in clinical psychology from Northwestern University in Chicago, Illinois. She completed residency and clinical fellowship at the VA Medical Center in Boston, Massachusetts, and then completed a 3-year research fellowship at Beth Israel Deaconess Medical Center before joining as faculty in 2019.

ABSTRACT

Mental comorbidities

Comorbid mental health conditions are common in IBS and are associated with worse symptom severity, higher healthcare utilization, higher cost cost, and poorer quality of life compared to IBS patients without psychiatric comorbidity. There are several physiologic mechanisms that may underly the comorbidity between IBS and mental health disorders including the brain/gut/microbiome axis, shared genetic susceptibility, and anatomical differences in brain volume. Dr. Ballou's talk will briefly describe the incidence, impact, and hypothesized shared mechanisms of psychiatric comorbidity in IBS and will then review methods for evaluation and treatment of some of the most common mental health comorbidities.

MEETING



MAGNUS SIMREN

Professor, Senior Consultant, Dept of Molecular and Clinical Medicine, Institute of Medicine, Sahlgrenska Academy at the University of Gothenburg, Sweden
Adjunct Professor of Medicine, University of North Carolina School of Medicine, UNC, Chapel Hill - USA

BIOSKETCH

Doctor Simrén's main research areas are the pathogenesis and pathophysiology of disorders of gut-brain interaction (DGBI), as well as the treatment of these. He has published more than 400 original articles and written several book chapters on GI motility diseases and DGBI and is currently supervisor for ten PhD students and seven post-docs. Doctor Simrén has served as council member for several international organizations, including UEG and the Rome Foundation. Professor Simrén has also been working as Deputy Editor and Associate Editor of Gut, and as the Clinical Editor of Neurogastroenterology and Motility. Currently, Professor Simrén is Associate Editor of Gastroenterology.

ABSTRACT

Symptom clusters

Patients with irritable bowel syndrome (IBS) and other disorders of gut-brain interaction (DGBI) frequently report widespread symptoms in the gastrointestinal (GI) tract, as well as comorbid non-GI somatic and mental symptoms and syndromes. This overlap, both within and outside the GI tract, influences various measures of health outcomes and overall symptom burden. The current classification scheme and subtyping of DGBI only includes GI symptoms. Recent studies in IBS have used novel approaches and included GI, as well as psychological and non-GI somatic symptoms in a novel classification model, which have identified six to seven clusters, based on combinations of severity of GI and non-GI symptoms. These clusters have been found to be associated with gender, including symptom severity, health care seeking, use of medications, quality of life, onset of disease, and disease duration.

Novel studies on the relevance of overlapping conditions and symptoms clusters in patients with IBS and other DGBI, indicate that adopting a more holistic view on symptoms provides a better view on the overall burden for the patients and can be of use to help guide management strategies.



MAURO D'AMATO

Professor of Medical Genetics, LUM University, Department of Medicine and Surgery, Casamassima - Italy

BIOSKETCH

Mauro D'Amato is Professor of Medical Genetics at the Department of Medicine and Surgery at LUM University in Casamassima - Italy, and Ikerbasque Research Professor and Head of the Gastrointestinal Genetics Lab in CIC bioGUNE, Derio - Spain. His career has developed through an international trajectory, holding research and academic positions at several institutions including the Wellcome Trust Center for Human Genetics in Oxford - UK, the Karolinska Institutet in Stockholm - Sweden, Biodonostia HRI in San Sebastian - Spain and Monash University in Melbourne - Australia.

Professor D'Amato has >25 years research experience in the field of human genetics and complex diseases, with activities most recently geared towards a translational application for therapeutic precision in gastroenterology. His team, the Gastrointestinal Genetics Laboratory, combine leading expertise in genomic, computational and pre-clinical research, and have linked specific genes and pathogenetic mechanisms to a number of gastrointestinal diseases like inflammatory bowel disease (IBD), microscopic colitis (MC) and irritable bowel syndrome (IBS).

Professor D'Amato is also the coordinator of the bellygenes initiative on the genetics of IBS, and biobank-scale research from his lab contributes to several consortia and collaborative networks studying the genetic makeup of millions of people across EU, USA and Australasia.

Professor D'Amato has an H-index of 74, has edited 2 books and published extensively in the field of human genetics and gastrointestinal disease; he provides expert feedback to international journals and research funding agencies, and has supervised more than 40 PhD students and postdocs.

ABSTRACT

Genetic factors: biobank-scale studies

Irritable bowel syndrome (IBS) shows genetic predisposition, but large-scale genetic studies have been dramatically lagging behind, compared to other gastrointestinal (GI) diseases. In the last few years, we conceived, promoted, and developed an international collaboration, the bellygenes initiative, aiming to exploit existing genotype and health-related data from several population-based biobanks across multiple countries, amounting to >700,000 individuals of European ancestry. This offered an unprecedented opportunity to tackle IBS genetics with adequate statistical power. Taking advantage of this resource, a genotype data from multiple sources have been analysed in relation to various definitions of IBS (from questionnaires and electronic medical records - EMRs), in order to perform individual genome-wide association studies (GWAS) and their meta-analyses. This led to a few GWAS risk loci being finally identified also in IBS, while laying the foundation for follow-up studies spanning genetic similarities with its co-morbidities. The use of endophenotypes for gene discovery was also recently explored in relation to IBS. Based on questionnaire data and bowel diaries, the genetic underpinnings of gut motility were recently studied via a GWAS of stool frequency (as its proxy), which showed heritability higher than IBS and several genes/loci associated. Overall, these biobank-scale studies provided compelling evidence for the importance of gene products involved in the digestion of carbohydrates, ion channel function, neurotransmission, peripheral neurological pathways and motor neuron function, in IBS and the control of gut motility. They also generated data that can be exploited for the identification of predisposed individuals based on the computation of polygenic risk scores (PRS). Larger analyses are ongoing, which include biobank data from the largest genomics efforts across multiple ancestries and continents. An overview of the state of the art will be provided, including expectations and potential limitations under a future perspective.

MEETING



QASIM AZIZ

Professor of Neurogastroenterology
 Director Wingate Institute of Neurogastroenterology
 Centre for Neuroscience, Surgery and Trauma, Blizard Institute
 Barts and The London School of Medicine and Dentistry
 Queen Mary University of London - UK

BIOSKETCH

Professor Qasim Aziz is Professor of Neurogastroenterology and director of the Wingate Institute of Neurogastroenterology. Professor Aziz's research contributed to the identification of the brain representation of human swallowing muscles and has helped to identify the human brain centers that process gastrointestinal pain and their modulation by injury and stress. His research has explored neurophysiological aspects and treatment of conditions such as Non-Cardiac Chest Pain and Non-erosive reflux disease and Irritable Bowel Syndrome. He has performed pioneering research exploring the link between connective tissue disorders and gastrointestinal symptoms.

Professor Aziz was awarded the Sir Francis Avery Jones Research Gold Medal by the British Society of Gastroenterology in 1998 and the Janssen Award for Basic and Clinical Research by the American Gastroenterology Association in 2000. He is past chair of the neurogastroenterology section of the British Society of Gastroenterology and has been a member of the Education and Scientific Committees of United European Gastroenterology and European Society of Neurogastroenterology and Motility. He was until recently the specialty lead for gastroenterology for the North Thames Clinical Research Network and is current President of the European Society of Neurogastroenterology and Motility.

ABSTRACT

Genotypic-phenotypic associations of abdominal pain

Qasim Aziz: Professor of Neurogastroenterology, Barts and The London School of Medicine and Dentistry, Queen Mary University of London UK

Identification of genes and pathways related to abdominal pain is complex and requires identification of endophenotypes. For chronic abdominal pain, proposed endophenotypes include rating of spontaneous and provoked gastrointestinal sensation; psychological factors such as anxiety, depression and personality; accurate measurement of stress response system activity including HPA axis, autonomic nervous and immune systems.

We have previously demonstrated in healthy subjects that using cluster analysis, two distinct groups with different characteristics exist. Group 1 individuals showed higher levels of neuroticism and anxiety, greater sympathetic nervous system activity, and higher cortisol levels. They also tolerated less pain and had increased parasympathetic activity during pain. A specific genetic variation (the 5-HTTLPR short allele) was more common in this group. Group 2 had the opposite profile: lower anxiety, lower sympathetic activity, and lower cortisol levels, with different responses to pain. Brain activity also differed between the groups with group 1 had more activity in the left frontal cortex, while group 2 had more in the right frontal cortex and right anterior insula. We further demonstrated that more patients with functional chest pain met the criteria for group 1 compared to group 2. This suggests that, in healthy people and in patients with chronic pain, there are two distinct and consistent profiles of physiological, psychological responses and genetic profiles with different susceptibility to pain (1,2).

More recently in a preliminary study (unpublished study) of children with abdominal pain, we identified three groups: one with an allergy tendency, one linked to mothers' health issues, and one with minimal other health problems. Genetic analysis showed that intestinal barrier and bile acid production genes were linked to pain in the allergy group, and bile acid production was also relevant in the second group. Predictive models indicated that both mothers' and children's health conditions are significant risk factors. These findings suggest that understanding the genetic links can help target future studies and treatments, especially for allergy-related pain.

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BRIAN LACY

Ph.D., M.D., FACP -Professor of Medicine and Consultant at Mayo Clinic Jacksonville - USA

BIOSKETCH

Brian E. Lacy, Ph.D., M.D., FACP is currently Professor of Medicine and Consultant at Mayo Clinic Jacksonville. He is the Program Director of the GI Fellowship, and is Associate Program Director for Scholarly Activities for the Medical Residency Program. He is the author of over 240 peer-reviewed articles on gastrointestinal motility disorders and functional bowel disorders, in addition to multiple textbook chapters. He is the former Editor in Chief of the American Journal of Gastroenterology and former Editor of Clinical and Translational Gastroenterology. Dr. Lacy was the co-Chairman for the Rome IV Committee on Functional Bowel Disorders. He is on the Board of Trustees for the Rome Committee.

ABSTRACT

Patient reported outcomes (PROs) in IBSD

Irritable bowel syndrome is one of the most common disorders of gut-brain interaction (DGBI). The world-wide prevalence ranges from approximately 5-10%, depending upon which definition is used (the Rome IV criteria are stricter than the Rome III criteria). Approximately one-third of all IBS patients are accurately classified as IBS with diarrhea predominance (IBS-D). Chronic symptoms of abdominal pain, diarrhea, bloating lead to a significant reduction in quality of life and are associated with increased healthcare costs. The exact pathophysiology of IBS remains to be elucidated, but it is related in part to alterations in the gut microbiota, changes in gastrointestinal motility, microscopic inflammation, bile acid malabsorption, and alterations in the enteric nervous system. Given the multifactorial nature of IBS, no gold standard of treatment exists. Available treatments for IBS-D include dietary modification, probiotics, serotonin (5-hydroxytryptamine) receptor antagonists (e.g., alosetron, ondansetron), opioid receptor agonists and antagonists (e.g., loperamide, eluxadoline, non-systemic antibiotics (e.g., rifaximin), bile acid sequestrants (e.g., cholestyramine, colesevelam), antidepressants/neuromodulators (e.g., tricyclic antidepressants, selective serotonin reuptake inhibitors), and complementary and alternative medicine (e.g., herbal therapies, mind-body interventions [e.g., cognitive behavioural therapy, hypnotherapy], mechanical interventions [e.g., yoga, acupuncture]). No validated treatment algorithm currently exists for patients with IBS and diarrhea and thus a variety of treatments are frequently used to manage symptoms. The lecture on the treatment of IBS with diarrhea will provide a state of the art review on the different diets and therapeutic agents used to treat IBS D symptoms with an emphasis on high quality, randomized control trials.

MEETING



CARLO DI LORENZO

Chief of the Division of Pediatric Gastroenterology, Hepatology and Nutrition at Nationwide Children's Hospital - Columbus - OH - USA

BIOSKETCH

Dr. Carlo Di Lorenzo is currently Professor of Pediatrics at The Ohio State University and Chief of the Division of Pediatric Gastroenterology at Nationwide Children's Hospital. He holds the Robert F. and Edgar T. Wolfe Foundation Endowed Chair in Pediatric Gastroenterology. The focus of his academic activities has been the diagnosis and treatment of disorders of gut-brain interaction and motility disorders in children of any age. He has published more than 350 peer-review and invited manuscripts and co-authored the only four books on pediatric gastrointestinal motility. He has served as President of the North American Society for Pediatric Gastroenterology Hepatology and Nutrition (NASPGHAN) and has held leadership positions within ANMS (council member and secretary), AGA (chair of the GDCH section), Brain-Gut Club, American Academy of Pediatrics (AAP) and American Board of Pediatrics (ABP). He has chaired both the Rome III and Rome IV Child-Adolescent committees and currently co-chairs one of the Rome V committees. He has received the Master Award in Gastroenterology by the AGA, the IFFGD Clinical Research in Pediatrics Award, the Rome Foundation/Torsoli Foundation Award, and the NASPGHAN Shwachman Award.

ABSTRACT

Pediatric IBS: What is peculiar in children

IBS is just as prevalent and impactful on the quality of life of affected individuals in children and it is in adults. While the definition of the disorder is similar between children and adults, there are several factors that need to consider when dealing with children and adolescents with IBS. During the presentation we will discuss the role of early life events, environmental factors (parents, school), and lifestyle events (lack of physical activity, disordered sleep, addiction to social media, COVID) in triggering and maintaining IBS. The importance of a limited amount of testing aimed at strengthening the value of effective reassurance will be emphasized. Finally, the key role of the parents in the success of treatment will be discussed.



GIADA DE PALMA

Assistant Professor - McMaster University Hamilton, ON - Canada

BIOSKETCH

Giada De Palma is Assistant Professor and research associate at the Farncombe Family Digestive Health Research Institute at McMaster University. The focus of her research is on the interaction between microbiome, diet, gut physiology and behavior in chronic gastrointestinal disorders, such as disorders of gut-brain axis interaction, with a specific interest into microbial function. She completed her PhD on the Influence of gut microbiota in Celiac disease in 2011, under the supervision of Dr. Yolanda Sanz at the Polytechnic University of Valencia in Biotechnology and Microbiology. She then moved to McMaster University where she completed a five-year postdoctoral fellowship with Dr. Premysl Bercik and Dr. Stephen M. Collins. Giada stayed as research associate in the laboratory of Dr. Bercik and Dr. Collins and in 2020 joined the faculty as Assistant professor.

ABSTRACT

Influence of microbiota on gut sensory-motor function

The gut microbiota play a central role in regulating gut physiology, including gastrointestinal motility and visceral sensitivity. Our research points to the gut microbiome function as key to these processes. Indeed, using mice humanized with the fecal samples of patients with IBS, we have shown that the microbiota produces metabolites, as histamine, that contribute to the development of visceral hypersensitivity. Diet and the surrounding microbial community can modulate histamine production and thus visceral hypersensitivity in these microbiota humanized mice. We have now evidence to show that both host and microbial metabolism of histamine play an important role in regulating luminal histamine levels. Altogether these data aid our understanding of the pathophysiological mechanisms underlying visceral hypersensitivity in a subset of IBS patients and guide the future development of tailored microbiota-directed therapies.

MEETING



SIMONE GUGLIELMETTI

Professor, Milan University - Italy

BIOSKETCH

Prof. Simone Guglielmetti graduated cum laude in Food Science and Technology from the University of Milan in 2001. He earned a PhD in Food Biotechnology in 2005. He began his academic career in 2005 at the University of Milan, later becoming an Associate Professor in 2015. In the same year, he was appointed Adjunct Professor of General Microbiology at Tampere University, Finland. In November 2023, Simone Guglielmetti became a Full Professor of Food Microbiology at the Department of Biotechnology and Biosciences (BtBs), Università degli Studi di Milano-Bicocca, Italy.

Professor Guglielmetti has taught various microbiology courses since 2008, including General and Food Microbiology, Probiotic Science, and Ecology of the Human Microbiota.

Professor Guglielmetti's research focuses on the interactions between microorganisms and their hosts, and the development of functional foods. Key areas include:

- Immunomodulatory properties and adhesion mechanisms of bifidobacteria and lactic acid bacteria.
- Impact of diet and probiotics on human and animal microbiomes.
- Industrial applications of probiotic microorganisms.

Professor Guglielmetti has authored over 130 publications in peer-reviewed journals, co-authored book chapters, and holds six international patents. According to Scopus, his works have received nearly 5500 citations, with an H-index of 39.

ORCID ID: <https://orcid.org/0000-0002-8673-8190>

ABSTRACT

Precision Medicine: Microbiota Signatures Predicting Probiotic Response in IBS

Irritable bowel syndrome (IBS) is a chronic gastrointestinal disorder characterized by abdominal pain, bloating, and altered bowel habits. The gut microbiome plays a significant role in IBS pathophysiology, with specific microbiota signatures varying among IBS subtypes. This study aimed to identify microbiota markers predictive of probiotic treatment response in non-constipated (NC) IBS patients.

We conducted a post-hoc analysis of a multicenter, double-blind, placebo-controlled trial involving NC-IBS patients treated with *Lactobacillus paracasei* DG (LDG). Patients received 24 billion CFU of LDG or placebo twice daily for 12 weeks. The primary endpoint was a composite response based on improved abdominal pain and stool consistency. Fecal bacterial metataxonomic profiles and serum markers of intestinal, liver, and kidney functions were analyzed.

Our results revealed that 25% of patients in the probiotic group responded to LDG treatment. Responders (R) exhibited distinct microbiota compositions compared to non-responders (NR) and healthy controls. Notably, 18 bacterial taxa, including members of the Coriobacteriaceae family, *Dorea* spp., and *Collinsella aerofaciens*, were significantly overrepresented in R patients. Probiotic intervention led to a reduction in these bacteria exclusively in R patients. Similar findings were observed for *C. aerofaciens* in a previous IBS trial with the same probiotic.

Furthermore, *C. aerofaciens* abundance correlated positively with plasmalemmal vesicle associated protein-1 (PV-1) and liver function markers, suggesting its potential as a predictive biomarker. These results indicate that NC-IBS patients with higher levels of pathobionts, particularly *C. aerofaciens*, may benefit from LDG treatment.

In conclusion, our study highlights the importance of microbiota-based precision medicine in IBS. Identifying specific microbiota signatures, such as *C. aerofaciens*, can enhance probiotic efficacy and offer personalized therapeutic strategies for IBS management.



VIOLA ANDRESEN

MD, MSc

Head of the Centre for Gastrointestinal and Nutritional Medicine at Medizinium Hamburg and associated professor of Hamburg University - Germany

BIOSKETCH

Viola Andresen, MD, MSc. is specialized in internal and nutritional medicine. Her main clinical and research interests are the pathophysiology, diagnostics and treatment of disorders of the gut-brain interaction. She takes active part in different projects of the Rome foundation and was coordinating member of the German consensus groups having developed and published treatment guidelines for Irritable Bowel Syndrome and Chronic Constipation. She is associate professor at the University of Hamburg and currently heading the Centre for Gastrointestinal Medicine and Nutritional Medicine at the Medizinium clinic in Hamburg.

ABSTRACT

Clinical evidence of probiotic efficacy

The pathophysiology of irritable bowel syndrome (IBS) is still not completely understood, but increasing scientific evidence suggests a contributing role of the gastrointestinal microbiome at least in a subset of IBS patients. Hence, modulation of the GI-microbiome has become a focus for various therapeutic approaches. Nutritional therapies such as the low-FODMAP diet influence the microbiota composition. While this may be considered as an 'adverse treatment effect' by critics, some of the mechanisms associated with positive treatment response might specifically be related to the modulation of microbiotic metabolism (metabolome). Antibiotic treatment with Rifaximin directly targets the gut microbiome and has proven to be effective in non-constipated IBS patients, specifically successful for the otherwise often refractory symptoms of bloating and abdominal distension. The vast majority of microbiome-targeting studies in IBS evaluated the effects of many different probiotic preparations, mostly containing single or multi-species strains of bacteria, with some preparations containing medicinal yeast. Up to date, many studies have demonstrated efficacy for various preparations. Subsequently, several meta-analyses have been published indicating that probiotics, overall, may have a moderate effect on improving IBS symptoms. However, the quality of evidence is typically regarded as low for most studies, and the overall evidence may be hampered by a significant heterogeneity between studies and a large risk of bias. For example, there is a large variation of study protocols (e.g. study type, patient populations, endpoints, treatment duration) as well as types and dosage of the probiotic compound (e.g. single species versus multi-species). It could also be debated whether it was at all justified to compare the various probiotic compositions within a meta-analysis as they may have different metabolic activities and interactions with the local gut microbiome. Moreover, the individual's microbiota composition is very unique and different patients may need different probiotic compositions to be effective. Hence, recent research is focusing on identifying individual factors to predict treatment responses to probiotic treatment. Finally, a very non-selective approach to modulate gut microbiota is the fecal microbiota transfer (FMT). Several studies have evaluated the effects of FMT in IBS with conflicting results. However, some results are very promising indicating that using stool from a fitting donor may be effective long-term. Again, current research challenges lie in identifying criteria for a fitting donor microbiome composition.

MEETING

**SUSANNA WALTER**

M.D.

Professor of Gastroenterology, University Hospital of Linköping - Sweden

BIOSKETCH

Susanna Walter, M.D., is Professor of Gastroenterology at Department of Health, Medicine and Caring Sciences, Division of Diagnostics and Specialist Medicine, University of Linköping, Sweden, and senior consultant in the Department of Gastroenterology, University Hospital of Linköping, Sweden. Since >20 years she has been working in a multidisciplinary team, providing healthcare for complex neurogastroenterology patients. In terms of research her focus has been on both DGBI and pelvic floor disorders. Her research area includes various aspects of IBS pathophysiology. She's in charge of a pelvic floor unit being a nationally leading center for patients with fecal incontinence and defecation disturbances. She is a member of Rome V Chapter Committee "Age, Race, Gender, Women's Health, and the Patient Experience".

ABSTRACT***Role of gender in IBS***

Worldwide, IBS is disproportionately affecting women. This presentation refers to the working process of Rome V chapter group "Patient Experience, Gender, Age, Race and Social Determinants of Health" and provides an overview on various aspects related to the gender differences in IBS.

The understanding of the gender-specific differences in IBS given the complex interplay of genetic, hormonal, environmental, and psychosocial factors is rapidly evolving. In terms of pathophysiology, the influence of gender and sex hormones on gastrointestinal motility, pain perception and other IBS related factors will be discussed as well as gender aspects of IBS in different life stages. Overlapping psychological, neurological, skeletomuscular, and chronic pain syndromes are more prevalent in women, with limited research representation of men. Differences in brain structure and function is a rapidly evolving research area, both in general but also in IBS. The presentation will include an update on this topic.



FERNANDO AZPIROZ

Digestive System Research Unit, University Hospital Vall d'Hebron; Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (Ciberehd); Department de Medicina, Universitat Autònoma de Barcelona - Spain

BIOSKETCH

Fernando Azpiroz is currently Professor of Medicine and Consultant in Digestive Diseases at the University Hospital Vall d'Hebron, Autonomous University of Barcelona, Spain. He graduated from medical school in 1977, and trained at the San Carlos University Hospital, Madrid, and at the Mayo Clinic, Rochester Minnesota, where he received the Edward C. Kendall Award for Meritorious Research. In 1986 he joined the Vall d'Hebron Department of Digestive Diseases where he served as Chief of the Department from 2009 to 2019.

Dr Azpiroz clinical practice focuses on functional gut disorders. His research program investigates the origin of gastrointestinal sensations and the somatic manifestations of functional gut disorders, particularly abdominal distension, rumination and pelvic floor dysfunctions. Dr Azpiroz has been distinguished with the Masters Award in Gastroenterology, Research Award of the International Group for the Study of Gastrointestinal Motility, Research Scientist Award of the Functional Brain Gut Research Group, and Senior Investigator-Clinical Science Award of the International Foundation for Functional Gastrointestinal Disorder.

ABSTRACT

Abdomino-phrenic dyssynergia: From mechanisms to treatment

Chronic bloating and abdominal distension are common in the general population and particularly common in disorders of gut-brain interaction. Bloating has been defined as the sensation of increased abdominal pressure/fullness, whereas distension describes the objective (visible) increase in abdominal girth. These two phenomena are often, but not always, associated. Whereas functional abdominal bloating may be a result of visceral hypersensitivity, visible abdominal distension in patients with disorders of gut-brain interaction, results from abnormal postural tone of the abdominal walls and content redistribution, without a concurrent increase in intraabdominal content. This mechanism, termed abdomino-phrenic dyssynergia (APD), has been described in a series of studies that measured the activity of the abdominal walls using abdomino-thoracic computed tomography imaging and electromyography recordings. These studies showed that episodes of abdominal distension were associated with a diaphragmatic push (increased tone and descent of the diaphragm), coupled with reduced tone and protrusion of the anterior abdominal wall.

The fact that APD can be reversed by biofeedback, indicates that it is a behavior-conditioned response. However, the acquisition—that is, why patients learn this abnormal maneuver—and trigger mechanisms remain unknown. In these patients, meal ingestion is frequently associated with abdominal distension. The perception of visceral sensations induced by meal ingestion, particularly in hypersensitive patients, might trigger APD in conditioned individuals. However, the relationship between visceral sensations and somatic muscular incoordination remains unclear. Other facilitatory factors, such as stress or fatigue, may have synergistic effects and render patients more susceptible to abdominal distension.

Since APD may be triggered or facilitated by abdominal sensations, treatment of abdominal symptoms by conventional therapy for disorders of gut-brain interaction, including dietary interventions and correction of constipation, may

improve distension. In refractory patients, biofeedback providing the patients an indication of abdomino-thoracic wall movement, may be effective.

MEETING



GIUSEPPE CHIARIONI

MD, RFF

Il Cerchio Med Healthcare, Verona Centre, Verona, Italy and UNC Center for Functional GI and Motility Disorders, University of North Carolina at Chapel Hill, Chapel Hill, NC - USA

BIOSKETCH

Dr. Chiarioni is Gastroenterology Consultant at the Verona Center of the "Il Cerchio Med" Italian Healthcare Division, Verona, Italy, and Adjunct Associate Professor of Medicine at the Division of Gastroenterology and Hepatology of the University of North Carolina at Chapel Hill, NC, USA. He is member of the Rome V Non-Pharmacological Care Support Committee and member of the former Rome IV Anorectal Committee of the Rome Foundation. He is acting as Associate Editor of the Journal: BMC Gastroenterology. He trained on GI Motility and Rehabilitation at Johns Hopkins University with Prof Schuster and Whitehead on 1987. Since then, he collaborates with the UNC Center for Functional GI and Motility Disorders of the University of North Carolina at Chapel Hill on multiple research projects focusing on management of Disorders of Gut-Brain Interaction (DGBI). His major includes biofeedback treatment of defecation disorders and hypnotherapy management of DGBI with several papers published on relevant Journals such as Gastroenterology, Gut, American Journal of Gastroenterology, UEG Journal, and Neurogastroenterology and Motility. He has been involved in cooperative projects to draw the most recent European Diagnostic and Treatment Guidelines for Faecal Incontinence, Constipation, Diarrhea, and Biofeedback Therapy for Pelvic Floor Disorders. He has also been involved in the definition of the London Criteria to standardize anorectal dysfunction diagnosis by high resolution anorectal manometry testing.

ABSTRACT

IBS overlapping with anorectal disorders

Giuseppe Chiarioni has received fees for advisory/speaker board by: Coloplast, EBNeuro, Errekappa Farmaceutici, Laborie, Mayoli.

Faecal incontinence (FI) refers to recurring leaking of solid or liquid stool for a period of at least 3 months in an individual with an age of at least 4 years, according to the Rome Foundation for disorders of gut-brain interaction (DGBI) (1). The definition has been rehearsed by the recently conveyed United European Gastroenterology Committee aiming to address all issues involved in FI management from diagnosis to treatment of difficult cases by means of an inclusive, multispecialty approach (2). FI is a prevalent symptom ranging from 7 to 15% in community-dwelling individuals with a devastating impact on quality of life (QOL) (1-3). Unexpectedly, FI goes often unrecognized because up to 70% of patients are either embarrassed to report it or poorly questioned by physicians for the challenges it poses (1-3). The European Guidelines on FI states: "Health care professionals should enquire about patient's symptoms in a sensitive manner and determine whether the patient suffers from FI" (2). Moreover, the Guidelines suggest that the patient may hide the symptom and consult for a different complain such as diarrhea predominant irritable bowel syndrome (IBS) (2,4).

In a recent retrospective cohort trial Li et al aimed to report on the prevalence and nature of DGBI on 249 mostly female FI patients referred for anorectal physiology (5). The symptom impact on general wellbeing and quality of life was evaluated by dedicated questionnaires. Three patients only were found to have symptoms limited to FI. In the remaining 246 individuals the mean number of additional, concurrent DGBI was 2.2 +/- 1.57 per patient (mean +/- S.D.). The most common concurrent diagnosis was defecation disorders (DD) (36,5%), followed by IBS (27.1%), and then functional constipation (20.7). Moreover, a greater number of comorbid DGBI in FI was associated with worse FI symptoms, higher anxiety, and depression scores (5). On the other side, Goodyer et al. explored the prevalence of FI in a large cohort of IBS patients meeting Rome IV criteria through an online self-registered UK registry finding 752 subjects who met Rome IV criteria for IBS among 1278 respondents. The Investigators found a 27% FI prevalence in IBS respondents (6).

Constipation is common digestive complaint in the general population and is associated with substantial health and economic burden (1). Most patients would respond to diet advice and tailored laxatives (1). DD such as inadequate pushing effort and/or paradoxical contraction of the pelvic floor muscles on straining are prevalent among non-responders (1). Pelvic floor biofeedback is effective treatment for refractory constipation due to DD (1). DD are regarded as relevant etiology in constipation predominant IBS, but the prevalence is ill-defined for anorectal physiology testing is required to diagnose it (1). However, we have recently shown that biofeedback is effective treatment for both constipation and bloating in IBS-C patients refractory to conservative management (7,8). Moreover, there is preliminary evidence that abdominal pain may be benefitted as well (9).

In conclusion, all patients consulting for IBS should be proactively screened for comorbid FI by sensitive phrasing. Anorectal physiology testing is to be considered in refractory IBS-C patients to improve management of constipation and bloating.

MEETING



NATHALIE VERGNOLLE

Directrice de Recherche-INSERM-Research Director
 Directrice de l'institut de Recherche en Santé Digestive (IRSD)
 Director of the Digestive Health Research Institute
 INSERM U1220
 INRAE U1416, Toulouse - France

BIOSKETCH

I'm a gastrointestinal pharmacologist focusing on inflammation and pain. Having trained in France, I spent half of my research career (10 years) in Canada, at the University of Calgary, before coming back to France taking a position at the National Institute of Health and Medical Research (INSERM). There, I have founded and I am the current director of the Digestive Health Research Institute in Toulouse (200 persons), France, where I also head a research team (Gut Proteases Signals) focused on the role of proteolytic balance and pathways in intestinal diseases such as Irritable Bowel Syndrome (IBS) and Inflammatory Bowel Diseases (IBD). My research work has contributed to identify the major role of protease signals in inflammation and pain mechanisms. We have identified molecular targets (proteases and protease-activated receptors: PARs) for the treatment of inflammation and pain, having been the first to identify the pro-inflammatory effects (Vergnolle et al. 1999) and the pro-nociceptive effects (Vergnolle et al. 2001) of PARs. Our work has lead pharmaceutical industry to launch programs on PAR inhibitors and protease inhibitors for the treatment of inflammation and pain, which are currently still on-going and for some of them in clinical phases.

ABSTRACT

Intestinal biofilms: The hidden secrets of mucus

An wide variety of microbes live under a symbiotic relationship with the human host, and are colonizing long-term ecological niches such as the gastrointestinal tract. This presentation will elaborate on the natural organization of such microorganisms at mucosal surfaces, as a network of communicating cells forming biofilms, and how complex polymicrobial and trans-kingdom interactions are constantly taking place in this habitat. We will discuss how biofilms are taxonomically and biogeographically stratified throughout the gastrointestinal tract. A specific attention will be placed on mucus invasion by biofilms. An overview on the contribution of the host / mucosal biofilm relationship in gut homeostasis will be provided, and its significance in digestive disorders will be discussed. A particular focus on studies related to irritable bowel syndrome will be proposed, with references to recently published work and unpublished data. The relevance of assessing biofilms in IBS will be discussed. Discussions on how host factors can shape the organization, structure and composition of mucosal biofilms will be fostered.



MARIA RAFFAELLA BARBARO

Researcher - IRCCS Azienda Ospedaliero-Universitaria di Bologna - Italy

BIOSKETCH

Dr. Maria Raffaella Barbaro is currently a researcher at the IRCCS Azienda Ospedaliero-Universitaria di Bologna. She graduated Summa cum Laude in Biological Sciences at the University of Bologna, Italy. She obtained her PhD in Molecular and Cellular Biology and she subsequently qualified in Clinical Pathology. During her PhD program, she spent a period in Paris, at the CEA-Saclay, where she focused on electron paramagnetic resonance and reactive oxygen species. Since 2012, she has been working as researcher in the Laboratory of Gastrointestinal and Functional Exploration at St. Orsola-Malpighi Hospital- University of Bologna with the team of Prof. Stanghellini and Prof. Barbara. Her research interests include functional gastrointestinal diseases, particularly IBS, intestinal permeability, neurogastroenterology and immunity. She is a co-author of papers in high impact journals and among the awards she received, there is a Certificate of Recognition for Young Scientific Accomplishment as an Early Stage Investigator and a Research Recognition Award from the International Foundation for Gastrointestinal Disorders (IFFGD) in the category of Basic Science Investigator.

ABSTRACT

Intestinal barriers and the gut-brain axis

The intestinal barrier is the largest interface between the environment and the human body.¹ This structure contributes to human homeostasis allowing the absorption of nutrients, water and electrolytes but at the same time limiting the passage of harmful antigens and microorganisms that could stimulate inflammatory responses in the intestinal mucosa and at a systemic level.² This delicate balance is achieved through the interaction of several elements: the mucus, the outer layer, followed by a single cell layer of epithelial cells, and finally the lamina propria, where the immune cells and blood capillaries are located.² The deregulation of intestinal permeability plays a central role in several diseases, including inflammatory bowel disease and celiac disease. The potential impact of increased intestinal permeability on gut-brain axis dysfunction and symptom generation³ in IBS is several fold. Increased intestinal permeability exposes the intestinal mucosa to an abnormal challenge of luminal antigens and microbial-derived factors that promote and maintain mucosal immune activation and visceral hypersensitivity, a concept further supported by preliminary evidence that amelioration of barrier dysfunction³ in patients with IBS, particularly post-infection IBS, improves abdominal pain⁴ and visceral hypersensitivity.⁵ While epithelial barrier defects may be sufficient to evoke local tissue damage and dysfunction, effects on distant organs such as the brain may require a further step, namely the crossing of the endothelial barrier leading to the spread of luminal antigens. The gut-vascular barrier (GVB)⁶ is located immediately below the epithelial barrier, and the maintenance of its integrity is essential to prevent the spread of harmful antigens and bacteria into the systemic circulation.

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MEETING



JAVIER SANTOS

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BIOSKETCH

Dr. Javier Santos is Head of Clinical Gastroenterology and Pancreas at the Hospital Vall d'Hebron, Barcelona, Director of the Consolidated Group of Digestive Research in Catalonia (2021-00766 SGR-AGAUR), Group Leader (CB06/04/0021) within the Spanish Network of Gastrointestinal and Hepatic Diseases, and proposed Director of the Group of Physiology and Pathophysiology of Digestive Diseases at the Vall d'Hebron Research Institute (VHIR).

Dr. Santos graduated in Medicine and Surgery from the University of Navarra (Spain) in 1988. He then completed his training in Gastroenterology and Hepatology (1989-1993) at the Hospital Universitari Vall d'Hebron, Barcelona, Spain. In parallel, he achieved a predoctoral degree in basic and clinical research in neuro-gastroenterology at the Digestive Diseases Research Unit, Dpt. of Gastroenterology, Hospital Vall d'Hebron (1993-1997) and obtained his Ph.D. at the Autonomous University of Barcelona, Spain (1997), under the tutorship of Dr. Esteban Saperas, he started a 3-year postdoctoral period (1997-1999) in Immunology and Gastrointestinal Physiology at the Intestinal Disease Research Program, McMaster University, Canada, under the supervision of Dr. Mary H. Perdue, where he received the CAG/ASTRA Fellowship for Meritorious Research, returning to the Hospital Vall d'Hebron in 2000. He then carried out three short (2-6 months) post-doctoral training stays in centers of international prestige such as the Nestle Research Center, Lausanne (2001), the Faircomb Institute, Faculty of Health Sciences, Hamilton, Canada (2011), and the Alimentary Pharmabiotic Centre, Bioscience Institute, University College Cork, Cork, Ireland (2012). In 2016, he became a Rome Foundation Fellow (R.F.F.). Dr. Santos has been honored by the Association of European and Mediterranean National Societies of Gastroenterology as Rising Star of Gastroenterology 2003, and more recently by the International Foundation for Functional Gastrointestinal Disorders (IFFGD) with the 2009 Research Award for the best Researcher in Clinical Sciences for his contributions in the field of Functional Gastrointestinal Disorders.

His clinical practice develops mainly in the hospital outpatient setting, integrated in a large referral unit, and focuses specifically, but not only, on disorders of brain-gut interaction, food allergies and intolerances, eosinophilic disorders, reflux disease and chronic diarrheal processes. Dr. Santos is the author of more than one hundred peer-reviewed publications and numerous national and international lectures in the field of functional gastrointestinal disorders and microbiota. He has contributed to the development of clinical guidelines in the field of gastroenterology and to the organization of national and international training courses on aspects related to functional disorders of the digestive system. He also develops various academic and scientific activities, including the supervision of gastroenterology fellows during their residency, the direction and mentoring of dozens of pre- and post-doctoral research fellows, and has acted as a member of national and international dissertation and steering committees. He is a member of several international professional and scientific societies, including the European Society of Neurogastroenterology and Motility, the International Foundation for Functional Gastrointestinal Disorders, the American Gastroenterological Association, and the European Gastroenterological Federation. He also serves as an external reviewer for regional, national and supranational public and private funding agencies and academic institutions, as well as for a very large number of scientific journals, including several editorial boards.

He has created and led the Neuro-Immuno-Gastroenterology Research Laboratory at the Hospital Vall d'Hebron for twenty years. His research in the field remains inherently translational, with special emphasis on the mechanisms linking genetic, molecular, microbial, cellular and environmental determinants to the clinical manifestations of functional gastrointestinal disorders. His research also aims at the identification of sensitive and specific molecular and microbial biomarkers potentially useful for the diagnostic and therapeutic management

of these common disorders. Dr. Santos has a solid research background, with more than 30 years dedicated to these tasks. He has enjoyed continuous funding from the Fondo de Investigación Sanitaria since 1999, when he was awarded the first generation Miguel Servet contract. Since then he has directed numerous competitive and non-competitive projects, including clinical trials of different categories. Dr. Santos has been a member of the Spanish Network of Hepatic and Digestive Diseases (CIBERehd) since 2009 and has participated in several European research initiatives, such as the European Training Network in Neural Regulation of Intestinal Function (NeuroGut, <https://cordis.europa.eu/project/id/607652/reporting/es>), two COST Actions (BM1007, Mast Cells and Basophils Targets for Innovative Therapies; BM1106, GENIEUR, The Genes in Irritable Bowel Syndrome Research Network Europe), and has recently obtained a large European project as main coordinator, for the study of the origin of comorbidities in IBS, www.discoverie.eu). He is also a member of the Rome Foundation (<https://theromefoundation.org/>) and keeps international ongoing collaborations in the field and also with transversal groups in other areas of medicine.

ABSTRACT

Hints from the DISCOVERIE H2020 Project

Development, diagnostic and prevention of gender-related somatic and mental comorbidities in IBS in Europe

Javier Santos¹, on behalf of all the "DISCOVERIE Horizon 2020 Consortium"

¹Department of Gastroenterology & Laboratory of Neuro-Immuno-Gastroenterology, VHIR & Vall d'Hebron Hospital Universitari, Barcelona, Spain & CIBERehd, Madrid, Spain.

Background: DISCOVERIE - Development diagnosis and prevention of gender-related Somatic and mental COMorbiditiEs in iRritable Bowel Syndrome in EU - is the largest European multicenter project on IBS to date, coordinated by the Vall d'Hebron Research Institute (VHIR), including 19 partners from 10 European countries and United States and funded under the H2020 Research Programme of the European Commission (Grant Agreement nº: 848228). DISCOVERIE consortium hosts clinical and research experts and opinion leaders in the field of neuro-gastroenterology, psychiatric disorders and somatic pain disorders to contribute to new directions for clinical research and personalized care.

Material and methods: The key objective of this 5-year project (2020-2025) is to provide an enhanced understanding on Irritable bowel syndrome (IBS), mental (depression, anxiety) and somatic (fibromyalgia and chronic fatigue) comorbidities and their risk factors. In particular, DISCOVERIE is meant to study the existing link between anxiety and depression and IBS – a brain-gut connection while identifying biomarkers for more accurate and earlier diagnosis, prognosis and monitoring of patients' condition. For this, we have recruited and characterized phenotypically 849 participants (median age 44 years; 76% female), assessed abdominal pain and triggers based on real-time symptom assessment by digital Experience Sampling Method, and intestinal permeability in vivo with the lactulose-mannitol-sucralose test (LMS) and ex vivo in colonic biopsies by Ussing chambers. We are presenting preliminary results of the study in Bologna and hints for microbiota and genetic-molecular factors, proteomic and metatranscriptomic analysis of intestinal mucosal samples.

Results & Conclusions: This large European multicenter study strengthens the importance of the impact of mental and somatic comorbid conditions and symptoms in IBS and their influence on outcomes and disease burden, highlights a strong variability in permeability between IBS patients of different countries, and demonstrates that real-time abdominal pain is significantly associated with environmental and affect triggers in IBS, enhancing the role of personalized healthcare in IBS.

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1. <https://discoverie.eu/>



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 848228

MEETING



MARIA VICARIO

PHD

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BIOSKETCH

Dr. Maria Vicario graduated in Pharmacy and received her Master's degree and PhD from the University of Barcelona in Physiology of the Gastrointestinal tract. Driven by her passion for understanding gastrointestinal barrier mechanisms and mucosal immunology, she pursued further studies at McMaster University in Canada and, as postdoctoral scientist, at Cincinnati Children's Medical Center in the United States and Linköping University in Sweden, gaining valuable insights into the intricate immune interactions within the gut mucosa. In 2011, Dr. Vicario established her research group (Translational Mucosal Immunology) supported by the Science National Program in Spain and within the Gastrointestinal department at Vall d'Hebron University Hospital in Barcelona. Her primary focus has been on unraveling the mechanisms underlying gut barrier function under pathological conditions, with a particular emphasis on immune-epithelial interactions. Her work has shed light on the structural and functional alterations of the gut barrier that contribute to common disorders of the gut-brain interaction, notably Irritable Bowel Syndrome and Functional Dyspepsia, paving the way for better understanding the pathophysiology of these conditions. Dr. Vicario has authored over 80 scientific articles, mentored students at different stages of the scientific career, lead national and international scientific consortiums, and her contributions have been recognized by prestigious gastroenterology societies, including the Rome Foundation, the American and the European societies of Neuro-Gastroenterology and Motility and the Spanish Society of Digestive Pathology. With her interest in translating scientific discoveries into practical applications she joined Nestlé Research in Lausanne (Switzerland) in late 2019. In this role, she continues to explore innovative ways to apply research findings to clinical and market settings, with the aim of improving the lives of individuals affected by gastrointestinal disorders.

ABSTRACT

Eosinophils in IBS and related conditions

As multifunctional resident immune cells of the gastrointestinal mucosa, eosinophils contribute to both, homeostasis and inflammation through the synthesis and release of different molecules (cationic proteins, cytokines, chemokines, growth factors and lipids) and the plethora of receptors they express, allowing them to interact with almost every component of the gut environment, including the microbiota. Beyond its role in allergic responses and parasite infections, emerging body of evidence positions the eosinophil as a key neuro-immune player in the regulation of gastrointestinal function, with potential implications in the pathophysiology of different conditions. In fact, eosinophils modulate mucosal immune activity and communicate bidirectionally with neurons, modulating functions in both cell types, a crosstalk that may underlie gut dysfunction in stress-associated conditions. Of interest are the disorders of the brain-gut interaction (DBGI), mainly irritable bowel syndrome (IBS) and functional dyspepsia (FD) in which mucosal eosinophilia and eosinophil activation have been identified in association with gastrointestinal symptoms severity and psychiatric comorbidities. Studies in mouse and in vitro models have demonstrated the eosinophil responsiveness to stress-associated challenges by inducing corticotropin-releasing factor synthesis and release without promoting pro-inflammatory activity, in alignment with the profile observed in IBS and FD. An overview of the recent advances in mucosal eosinophil biology and potential avenues to explore for increasing our understanding of eosinophil-driven neuro-immune interactions will be presented to support the eosinophil as a future therapeutic target to improve gut health in DBGI.



GUY BOECKXSTAENS

Professor, KU Leuven / UZ Leuven, Leuven - Belgium

BIOSKETCH

Prof. Boeckxstaens obtained his medical degree in 1987 and his PhD degree in 1991. In 1994, he completed his clinical training in Internal Medicine / Gastroenterology and accepted a staff position in the Department of Gastroenterology & Hepatology at the Academic Medical Center in Amsterdam, The Netherlands. In 2005, he became Professor of Neurogastroenterology at the Academic Medical Center and was appointed co-chair of the department of Gastroenterology and head of Gastrointestinal Research. In 2007, he accepted a full professorship in Medicine at the University of Leuven (Belgium) in the department of Gastroenterology. He received several national and international prizes, including the FWO Excellence Award 2020 for Clinical Biomedical Sciences, and received the prestigious European Research Council (ERC) Advanced Grant in 2014 and in 2019. Currently, he is Associate Editor of Gut, has published over 350 peer-reviewed manuscripts and has an H-index of 72. The scientific expertise of the research group of Prof. Boeckxstaens relates to neurogastroenterology and neuro-immune interactions in the gastrointestinal tract. The mechanisms leading to diseases such as achalasia, gastroesophageal reflux disease, irritable bowel syndrome, chronic constipation, functional dyspepsia and postoperative ileus have been the main topics of interest over the past 25 years.

ABSTRACT

Mast cells in IBS: Pathophysiology and potential therapeutic implications

IBS patients suffer from abnormal abdominal pain, or visceral hypersensitivity (VHS), associated with altered bowel habits in the absence of an organic detectable cause. The pathophysiology of the disease is incompletely understood but immune activation, and particularly chronic mast cell activation, is increasingly recognized to alter the function of visceral pain sensing nerves or nociceptors leading to abnormal pain signalling. By releasing increased levels of mediators, including histamine, mast cells sensitize enteric nociceptors and lead to VHS development. We recently showed that a bacterial infection can lead to a local break in oral tolerance to food antigens leading to IgE-mediated mast cell activation and food-induced abdominal pain in preclinical models and in IBS patients. Also persistent psychological stress and bacterial superantigens are able to break oral tolerance and install a similar phenotype of VHS, involving IgE-mediated mast cell activation. Of interest, blockade of histamine 1 receptor activation results in symptom improvement in approximately 50% of IBS patients, underscoring the clinical relevance of this neuro-immune axis. Current scRNA seq studies of IBS biopsies will hopefully yield new targets to treat the remaining non-responders.

MEETING



MICHAEL CAMILLERI

M.D., D.Sc.

(C.E.N.T.E.R.), Division of Gastroenterology and Hepatology, Mayo Clinic, Rochester, Minnesota - USA

BIOSKETCH

Michael Camilleri, M.D., D.Sc., is Professor of Medicine, Pharmacology, and Physiology at Mayo Clinic College of Medicine and Science, and Consultant in the Division of Gastroenterology and Hepatology at Mayo Clinic in Rochester, Minnesota. His research interests include clinical enteric neurosciences, gut neurohormonal control, obesity, irritable bowel syndrome, and pharmacology/pharmacogenomics. He has published ~1300 articles (H index 104 and >40k citations, >35k without self-citation). He has received numerous awards and honors including the Joseph B. Kirsner Award and the Julius Friedenwald Medal from the American Gastroenterological Association, and the Ismar Boas Medal from the German Society of Digestive and Metabolic Disease. He has mentored more than 80 national/international postdoctoral fellows/scientists. He is Past-President of the American Gastroenterological Association and the American Neurogastroenterology and Motility Society, the founding editor of Clinical Gastroenterology and Hepatology, and is currently an associate editor of Gut.

ABSTRACT

Bile Acid Diarrhea/Malabsorption

This presentation provides an update of information on the epidemiology, pathophysiology, mechanisms, manifestations, diagnosis, and treatment of BAD.

Epidemiology and Impact: Bile acid diarrhea (BAD) is characterized by increased frequency of bowel movements, looser stool consistency, urgency, and need for proximity to toilet facilities owing to the severity of the diarrhea, when compared with or relative to irritable bowel syndrome with diarrhea (IBS-D). Consequently, BAD leads to decreased quality of life. The condition is often misdiagnosed as IBS-D or functional diarrhea. About a third of patients with IBS-D or functional diarrhea have BAD.

Pathophysiology: Patients with BAD have accelerated colonic transit, increased intestinal or colonic mucosal permeability, and altered stool microbiome composition associated with reduced dehydroxylation of primary to secondary bile acids.

Diagnosis: The established diagnostic test, selenium-75 homocholic acid taurine retention, is not available in the United States. Therefore, 48-hour fecal bile acid excretion has been the gold standard for diagnosis. With recent validation of combined measurement of primary bile acids in a single, random stool in addition to fasting serum 7 α -hydroxy-4-cholesten-3-one, a practical point-of-care diagnostic test will soon be available. There are advantages in making the positive diagnosis over empiric trial.

Treatment: Randomized, controlled trials have documented superiority of colestevlam to placebo, and, in a separate study, superiority of the glucagon-like peptide 1 agonist, liraglutide, compared with colestevlam. Novel experimental approaches for BAD include farnesoid X receptor agonists and fibroblast growth factor 19 analogs.

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BRUNO CHUMPITAZI

Professor of Medicine, Pharmacology, and Physiology at Mayo Clinic College of Medicine and Science, Consultant in the Division of Gastroenterology and Hepatology at Mayo Clinic in Rochester, Minnesota - USA

BIOSKETCH

Dr. Chumpitazi is a pediatric gastroenterologist, Professor of Pediatrics, and Division Chief of Pediatric Gastroenterology, Hepatology, and Nutrition at Duke University School of Medicine. Due to the high prevalence of disorders such as irritable bowel syndrome, Dr. Chumpitazi has a strong commitment to enhancing the care and quality of life for children with neurogastrointestinal disorders. Dr. Chumpitazi's clinical research has primarily focused on children with irritable bowel syndrome. His laboratory has studied the interaction between fermentable carbohydrates (e.g., fructans) and the gut microbiome in inducing IBS symptoms. His group's research has been supported by societies, including the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition and the American College of Gastroenterology, as well as by the United States National Institutes of Health. He currently serves on two Rome V committees, including the Intestinal Microenvironment Committee and the Pediatric Lower Gastrointestinal Tract and Pain Disorders Committee.

ABSTRACT

Mechanisms underlying food-related symptoms in children and adults

The role of diet in children and adults with irritable bowel syndrome (IBS) is very important and can affect the daily lives of patients with IBS. In children and adults with IBS, there is an extremely high prevalence of perceived food or food types that exacerbate symptoms, and the number of perceived food intolerances correlates with IBS clinical severity and decreased quality of life.

Food has several mechanisms that may induce IBS symptoms. These include primary mechanisms related to osmotic, chemical, mechanical, neuroendocrine, and pro/pre/post-biotic effects. Food may also cause symptoms through secondary mechanisms such as fermentation byproducts, changes in intraluminal pH, and microbiome-related activity. These food-related primary and secondary mechanisms interact with the patient's genetics and underlying IBS pathobiology (e.g., neuroimmune activation, visceral hypersensitivity, alterations in gut microbiota composition and function) to lead to IBS symptoms. Evidence supporting these mechanisms in humans is growing through genetic and physiologic studies and those related to dietary interventions such as the low fermentable, oligosaccharide, disaccharide, monosaccharide, and polyols diet.

MEETING



PREMYSL BERCIK

Professor, McMaster University Hamilton, ON - Canada

BIOSKETCH

Dr. Bercik is Professor of Internal Medicine and Gastroenterology at McMaster University, Hamilton, Canada. He is a clinician-scientist, with interests in both clinical and basic research in the microbiota-gut-brain axis, motility and functional bowel disorders, neuro-immune interactions and celiac disease.

He published over 130 peer-reviewed papers; his current Google Scholar h-index is 68, with more than 22,000 citations. He was awarded the 2021 Research Excellence Award from the Canadian Association of Gastroenterology.

His research in microbiome spans over 25 years, originating with studies on the role of *H. pylori* in acid secretion, followed by the role of commensal bacteria in gut motility and visceral sensitivity, and finally exploring interactions between the microbiota and brain function.

ABSTRACT

The microbiota-brain axis

The gut microbiota is a key factor that determines host intestinal immune homeostasis, metabolism and gut function, and it also influences distant organs such as the brain. Gut microbiota communicates with the central nervous system through multiple pathways, including endocrine, neural and immune-mediated mechanisms. During the initial bacterial colonization, the activation of innate immune system through pattern recognition receptors, including Toll-like receptors (TLRs) and nucleotide-binding oligomerization domain (NOD) proteins, induces widespread alterations in the neural system that ultimately lead to changes in the central neural plasticity. This process critically involves activation and migration of the intestinal dendritic cells into the brain. Impairment of this process resulting in the aberrant immune response could predispose to anxiety, depression or generalized psychological vulnerability, and lead to the development of disorders of gut-brain interaction.



ANTONIO GASBARRINI

Full Professor of Internal Medicine at the Università Cattolica of Rome - Italy

BIOSKETCH

ANTONIO GASBARRINI (male), born in Bologna the October 11th 1963, is Full Professor of Internal Medicine at the Università Cattolica of Rome. He is also the Director of Postgraduated School in Internal Medicine in the same institution. Chairman of Medical and Surgical Sciences Department and Director of Internal Medicine and Gastroenterology Unit at the Fondazione Policlinico Universitario Gemelli IRCCS. He obtained his Medical Degree at the University of Bologna and specialties in Internal Medicine and Gastroenterology in the same institution. He completed his training in the University of Bologna and in the University of Pittsburgh in Pittsburgh (USA). His fields of interests are: Irritable Bowel Syndrome and Inflammatory Bowel Disease, Gut Microbiome and Metabolome, acute and chronic Liver insufficiency, viral hepatitis, hepatocellular carcinoma and Liver transplantation, celiac disease and intestinal malabsorption. He is the winner of over 30 national and international prizes or awards, member of numerous international associations and of over 15 journal editorial boards, and author of more than 1000 scientific publications (h-index = 87) and over 35.000 citations. He gained international recognition for his pioneering work in the field of microbiota related disorders, microbiota signature of diseases, microbiota modulation and fecal microbiota transplantation.

ABSTRACT

Microbiome: Hot off the press

The gut microbiome is acknowledged as a key determinant of human health, and technological progress in the past two decades has enabled the deciphering of its composition and functions and its role in human disorders. Therefore, manipulation of the gut microbiome has emerged as a promising therapeutic option for communicable and noncommunicable disorders. Full exploitation of current therapeutic microbiome modulators (including probiotics, prebiotics, and faecal microbiota transplantation) is hindered by several factors, including poor precision, regulatory and safety issues, and the impossibility of providing reproducible and targeted treatments. Artificial microbiota therapeutics (which include a wide range of products, such as microbiota consortia, bacteriophages, bacterial metabolites, and engineered probiotics) have appeared as an evolution of current microbiota modulators, as they promise safe and reproducible effects, with variable levels of precision via different pathways.

MEETING



FRANCESCO ASNICAR

Researcher, Department CIBIO, University of Trento - Italy

BIOSKETCH

Francesco Asnicar, Ph.D., is a tenure-track researcher at the CIBIO Department at the University of Trento (Italy). Previously he was a postdoctoral researcher in the Computational Metagenomics lab under the supervision of Prof. Nicola Segata. Francesco has a computer science background and his research interests focus on developing computational analysis tools to study the human microbiome, studying in particular the complex relationships between diet and metabolic responses with the human gut microbiome.

ABSTRACT

Computational metagenomics for the analysis of gut microbiota

The human gut microbiome is a complex community of microbes within our intestines that significantly impacts our health. The human microbiome has been associated with many diseases, but we still do not know the precise role played by the many specific bacterial species. Shotgun metagenomics is the most advanced tool that allows us to analyze the genetic makeup of microbial communities, providing an unbiased and in-depth view and revealing which bacterial species are present and their functional potential. Shotgun metagenomics data revealed a large and previously unknown fraction of the community. Computational methods were pivotal in improving the resolution of analysis methods, describing previously unknown species, and going down to the strain-level resolution. Accurate computational methods enabled revealing stronger links between the microbiome and host health.



GIANLUCA IANIRO

MD

Gastroenterologist - Università Cattolica of Rome - Italy

BIOSKETCH

Gianluca Ianiro received his medical degree in 2009 summa cum laude at the Catholic University of Rome. He trained in gastroenterology at the same University. He is currently gastroenterologist at the Digestive Disease Center of the Fondazione A. Gemelli IRCCS and adjunct professor in gastroenterology at the Università Cattolica del Sacro Cuore in Rome, Italy.

He has since gone on to establish himself as a key clinical and translational investigator focusing mainly in the field of intestinal microbiota, and has received several research grants in support of his innovative research. His current research is focused mainly on microbiome diagnostics, on disentangling the rules of donor microbiome engraftment, and on investigating microbiome therapeutics.

ABSTRACT

Gut microbiota testing in clinical practice

Recently the analysis gut microbiota has been applied to the diagnosis of diseases, to predict response to therapies, or to target microbiome-based treatments.

However, the use of microbiota testing in clinical practice is prevented by several issues, such as the lack of knowledge on this topic, the absence of standardization for hardware and softwares, the insufficient training of clinicians on this field, the absence of validated tests as well as of established regulations in this field.

Due to the increasing enthusiasm of patients, gut microbiota testing are currently available in a direct business-to-consumer way. They are mainly based on the analysis of 16SrRNA, or by PCR or culture, with concerns due to the absence of any methodological standard. with considerable waste of patient and, more generally, healthcare resources. Additionally, Moreover, these tests generate false hopes in patients often suffering from severe disorders, leading potentially to detrimental consequences. For this reason, international efforts have been building consensus on different aspects of microbiome testing, from indications to metadata collection, sequencing and analysis, and reporting.

MEETING



FLORENCIA CARBONE

Clinical Research Project Manager bij UZ Leuven - Belgium

BIOSKETCH

Dr. Florencia Carbone is a Clinical Research Project Manager at the University Hospital of Leuven. She is also part of the Translational Research Center in Gastro-intestinal Disorders (TARGID) at the KU Leuven where she works closely with the GI Motility and Sensitivity Research Group under supervision of Prof. Jan Tack. Here she has dedicated more than 10 years studying the pathophysiology, management and alternative treatments for Functional Dyspepsia (FD), Gastroparesis and IBS. Her research experience includes protocol writing, study set up, data analysis and publication of more than 30 clinical studies that account for national and international multicentric studies, clinical interventional trials (pharmacology, diet, medical devices), scientific physiologic studies in humans (adult and paediatric). She also supervises master student, PhDs and Postdocs. Florencia has also close project collaborations with international and national entities such as The Belgian Health Care Knowledge Centre (an independent federal research institute), the Rome Foundation and ESNM. With an H-index of 21, she has published more than 70 peer-reviewed articles in the international literature with over 1,500 citations. ORCID: <https://orcid.org/0000-0003-1790-7904>.

ABSTRACT

Exploring the effectiveness of personalized diet interventions in IBS

Nowadays it has become generally accepted that food plays an important role in the pathophysiology of IBS. An important proportion of patients can recognize a pattern of foods triggering symptoms and different diets have shown to improve symptoms and quality of life. As such, dietary management has become an important aspect of IBS treatment. During this session we will explore various dietary approaches used to treat IBS and we will discuss their level of efficacy based on the quality of evidence. There are many reports of favourable responses to the benefit of reduced intake of FODMAPS. Yet, the strict low FODMAP diet is challenging and the reintroduction steps might be experience as long and frustrating for patients. Nowadays, variations of this diet have made their way as light FODMAP diets. In addition, we will identify areas of research on the role of food factors and new opportunities for dietary intervention. Emerging data on confocal laser endomicroscopic evaluation of mucosal responses to food proteins suggest a role for an atypical duodenal allergic reactions in IBS symptom generation.



EAMONN QUIGLEY

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BIOSKETCH

Eamonn M M Quigley MD FRCP FACP MACG FRCPI MWGO is David M Underwood Chair of Medicine in Digestive Disorders and Chief of the Division of Gastroenterology and Hepatology at Houston Methodist Hospital. A native of Cork, Ireland, he graduated in medicine from University College Cork. He trained in internal medicine in Glasgow, completed a two-year research fellowship at the Mayo Clinic and training in gastroenterology in Manchester, UK. He joined the University of Nebraska Medical Center in 1986 where he rose to become Chief of Gastroenterology and Hepatology. Returning to Cork in 1998 he served as Dean of the Medical School and a PI at the Alimentary Pharmabiotic Center. He served as president of the American College of Gastroenterology and the WGO and as editor-in-chief of the American Journal of Gastroenterology. Interests include IBS, gastrointestinal motility and the role of gut microbiota in health and disease. He has authored over 1000 publications and has received awards and honorary titles world-wide. Married for over 40 years to Dr Una O'Sullivan they have 4 children and five grandchildren. Interests outside of medicine include literature, music and sport and rugby, in particular; Dr Quigley remains a passionate supporter of Munster and Irish rugby.

ABSTRACT

Microbiota modulation: A true alternative to conventional therapies?

The role of the microbiota in DGBI can be viewed from several perspectives and framed into a few questions.

1. Does the gut microbiome play a role in the pathogenesis of DGBI?

Here there are several strands of evidence that one can draw upon: the well described occurrence of IBS and FD in the aftermath of an enteric and, in particular, a bacterial gastroenteritis, recent descriptions of the development or exacerbation of a DGBI by COVID infections, providing the most obvious examples. The association of antibiotic use in early life with the subsequent development of DGBI speaks to the impact of microbiome disruption during a vulnerable phase in its development on subsequent health. More recently multiple studies have examined the composition of the gastric, small intestinal, colonic and fecal microbiome in various DGBI and while far from consistent do suggest that the microbiome is disrupted in DGBI. Finally microbiome interactions with diet must be remembered.

2. Can the microbiome help to diagnose DGBI or guide its management.

While a microbiome signature diagnostic for any given DGBI has yet to be defined there are hints that the baseline microbiome can predict disease severity and predict response to therapeutic interventions such as special diets. Two significant challenges here are the heterogeneity of DGBI phenotypes and the relative paucity of.

3. Can microbiome modulation be used to treat DGBI?

The opportunities for microbiome modulation are legion and extend all the way from dietary regimens, through probiotics, prebiotics, synbiotics, postbiotics and antibiotics to fecal microbiota transplantation. Some well-established examples remain extant: the eradication of *H. pylori* in FD or the use of rifaximin in non-constipated IBS. Elsewhere the situation is less clear-cut. Each of the other interventions has been studied to a variable extent in IBS and to a much lesser degree in FD and CIC. Results vary widely and are undoubtedly influenced by many factors, not least being the less-than-optimal design of many studies and the relatively short duration of follow-up. It is clear, however, that some of these interventions do work in certain circumstances, how to optimize and generalize responses through patient and product selection remains the challenge.

MEETING



MICHAEL CAMILLERI

M.D., D.Sc.

(C.E.N.T.E.R.), Division of Gastroenterology and Hepatology, Mayo Clinic, Rochester, Minnesota - USA

BIOSKETCH

Michael Camilleri, M.D., D.Sc., is Professor of Medicine, Pharmacology, and Physiology at Mayo Clinic College of Medicine and Science, and Consultant in the Division of Gastroenterology and Hepatology at Mayo Clinic in Rochester, Minnesota. His research interests include clinical enteric neurosciences, gut neurohormonal control, obesity, irritable bowel syndrome, and pharmacology/pharmacogenomics. He has published ~1300 articles (H index 104 and >40k citations, >35k without self-citation). He has received numerous awards and honors including the Joseph B. Kirsner Award and the Julius Friedenwald Medal from the American Gastroenterological Association, and the Ismar Boas Medal from the German Society of Digestive and Metabolic Disease. He has mentored more than 80 national/international postdoctoral fellows/scientists. He is Past-President of the American Gastroenterological Association and the American Neurogastroenterology and Motility Society, the founding editor of Clinical Gastroenterology and Hepatology, and is currently an associate editor of Gut.

ABSTRACT

Treatment of IBS Spectrum: From Algorithms to Practical, Cost-Effective Biomarkers

Background: Several organizations have proposed guidelines or clinical decision tools for the management of patients with disorders of gut brain interactions (DGBI) affecting the lower digestive tract including irritable bowel syndrome and chronic idiopathic constipation. Such algorithms are based on sequential therapeutic trials and modifying the treatment strategy based on efficacy and adverse events.

Purposes: To evaluate the evidence for efficacy of second- and third-line pharmacotherapies, and to assess the evidence for the alternative option to manage subgroups of patients with symptoms suggestive of lower DGBI based on diagnostic tests or documented dysfunctions. The preeminent tests to identify such subgroups that present with symptoms that overlap with lower DGBI are detailed: digital rectal examination as well as anorectal manometry and balloon expulsion for evacuation disorders, detailed measurements of colonic transit, and diagnosis of bile acid diarrhea or carbohydrate malabsorption based on biochemical measurements (figure). The presentation will also address the cost implications of screening to exclude alternative diagnoses and the costs of therapy associated with the therapeutic options following an algorithmic approach to treatment from the perspective of society, insurer, or patient. Finally, costs of the diagnostic tests to identify actionable biomarkers and the evidence of efficacy of individualized therapy based on formal diagnosis or documentation of abnormal functions in placebo-controlled, randomized trials will be presented.

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CRISTIANO CARUSO

MD

Gastroenterologist - Università Cattolica of Rome - Italy

BIOSKETCH

Medical Degree obtained in 2004 at La Sapienza University of Rome. Specialization in Allergology and Clinical Immunology obtained in 2008 at the Catholic University of Sacred Heart of Rome. Level I Medical Director at A. Gemelli University Polyclinic Hospital in Rome. Principal Investigator of Phase I, II, III and IV for new molecules for severe asthma treatment. Representative of the ASTHMA section of the European Academy of Allergy and Clinical Immunology (EAACI). Elected member of the scientific board of the Italian Society of Allergology and Clinical Immunology (SIAAIC). Speaker at national (SIAAIC, AAIITO) and international (EAACI) congresses.

ABSTRACT

Bromatech Sponsored lecture

Modulation of gut microbiota in patients with IBS and systemic nickel allergy after diet and probiotic supplementation: a pilot study

The gastrointestinal tract (GIT) has a very important immune function in developing either effector or tolerant responses to different antigens by balancing the activities of Th1 and Th2 cells as well as regulating Th17 and T regulatory (Treg) cells in the lamina propria. Immune dysfunction in allergic diseases such as asthma and food allergy seems to be related to differences in function and composition of the gut microbiome. The alarming increase in the incidence and severity of food allergies (FA) has coincided with lifestyle changes, such as dietary modifications and increased antibiotic use. These demographic shifts have profoundly altered the co-evolved relationship between host and microbiota, depleting bacterial populations critical for the maintenance of mucosal homeostasis.

The gut microbiota can be defined as the trillions of microbes that collectively inhabit the gut lumen and increasing evidence shows that altered patterns of microbial exposure [dysbiosis] early in life can lead to FA development by negatively influencing immune system development.

Thus, the gut microbiota could be considered a potential target for preventive and therapeutic intervention against FA. Recent studies have reported the efficacy of intervention in the gut microbiota against FA. In recent years, strong evidence of a possible relationship between modifications of the gut microbiota composition and development of Irritable bowel syndrome (IBS) has been collected. The currently reported general population prevalence of nickel (Ni) allergy is 8–18% in US and Europe, in southern European countries such as Italy it is estimated to be 16%. In sensitized subjects, ingested nickel (Ni) may induce gastrointestinal symptoms similar to IBS, in addition to typical systemic cutaneous lesions (systemic nickel allergy syndrome [SNAS]). A low-nickel diet could improve the systemic manifestations. This observational pilot study aimed to evaluate the effects of probiotic supplementation in patients with IBS and SNAS, previously unsuccessfully treated only with dietary intervention, in terms of modulation of faecal microbiota population, reduction of GI symptoms, increase of the patient's quality of life and modification of gut dysbiosis.

MEETING



ANDREA CASTAGNETTI

General Manager of Wellmicro

BIOSKETCH

Andrea Castagnetti obtained a master's degree in molecular and cellular biology at the University of Bologna after carrying out his experimental thesis at the Lions Eye Institute in Perth (Australia). Subsequently obtained a PhD in molecular biotechnology at the University of Siena carrying out the research in microbiology at the Novartis Vaccines Srl research center in Siena. At the end of the PhD, he specialized in the field of human microbiota by obtaining a post-doc year at the Microbial Ecology Unit of the University of Bologna. In 2015 he co-founded Wellmicro Srl, a company dedicated exclusively to the provision of high-tech services for the study and treatment of the human microbiota with patented methodologies. Since 2021, Wellmicro has joined the Named Group and he holds the position of General Director of the company.

ABSTRACT

Wellmicro Sponsored lecture***Hidden players: a metagenomic multi-kingdom approach for a better IBS characterisation***

The Next Generation Sequencing (NGS) is revolutionizing knowledge on the importance that microbial communities (microbiota) have on the health status of the host. Taxonomic classification is a fundamental part of NGS analyzes of the microbiota that requires increasingly refined classification tools using comprehensive databases. Here we present PROMETHEUS[®], an innovative k-mer-based metagenomic sequence classifier, which uses a highly curated multi-kingdom database containing genomes of bacteria, archaea, fungi, (DNA) viruses and protozoa. PROMETHEUS[®] was used to profile the gut microbiota of 192 subjects with irritable bowel syndrome (IBS), generating multi-kingdom profiles for each sample. Random Forest-based Machine Learning techniques highlighted an interkingdom network of six organisms strongly involved in promoting the condition of IBS. Furthermore, PROMETHEUS[®] allowed the presence of parasites to be detected in 5 samples, suggesting the possible parasitic nature of symptoms attributed to IBS.



GIOVANNI BARBARA

Professor of Internal Medicine & Gastroenterology

Chief, Division of Gastroenterology & Hepatology, University of Bologna - Italy

BIOSKETCH

Giovanni Barbara is Full Professor of Gastroenterology at the University of Bologna, Italy. He is currently Chair of Gastroenterology and vice Chair of the Department of Medical and Surgical Sciences at the same University. He graduated summa cum laude in medicine at the University of Bologna. He subsequently qualified in internal medicine and then gastroenterology at the same University. He was trained partly in London, UK and completed a post-doctoral research fellowship in neuro-immunology at McMaster University, Canada. Currently, he coordinates a large group of physicians, and scientists involved in the fields of clinical gastroenterology, advanced endoscopy, teaching and clinical as well as translational research.

Professor Barbara's main research interests relate to basic and clinical aspects of disorders of gut-brain interaction and neurogastroenterology, and he has authored numerous indexed peer-reviewed articles and reviews on these topics, published in various biomedical journals, including Gastroenterology, Gut, the Journal of Clinical Investigation and Trends in Pharmacological Sciences, Nature. He is, or has been, a member of the Editorial Boards of Gastroenterology, Gut, the American Journal of Gastroenterology, Neurogastroenterology and Motility, the American Journal of Physiology and other international scientific journals.

Professor Barbara has received national and international awards including those from the American Gastroenterological Association, the Functional Brain Gut Research Group, the European Society of Neurogastroenterology and Motility and the Master Award in Gastroenterology from the American Gastroenterological Association. He is currently member of the Board of Directors of the Rome Foundation, Past-President of the European Society of Neurogastroenterology and Motility (ESNM) and currently Chair of the Gut Microbiota and Health Section of ESNM.

ABSTRACT

Cadigroup Sponsored lecture

Escherichia coli Nissle 1917: targeting microbiota to fight IBS

Over the past decade, research on the gut microbiome has expanded rapidly, alongside growing interest in using probiotics to influence gut microbiota. Probiotics are live microorganisms that, when administered in adequate amounts, confer a health benefit to the host and may represent a therapeutic option for diseases characterized by dysbiosis such as irritable bowel syndrome (IBS). Meta-analyses indicate that probiotics offer a therapeutic advantage over placebo for overall symptoms in IBS patients, with a high safety profile. Given the significance of the probiotic approach in treating IBS, it is timely to review factual and supporting information on their clinical application and use. In this presentation, I will discuss the scientific evidence regarding the mechanisms of action and clinical use of *Escherichia coli* Nissle 1917 (EcN) in IBS patients. This *E. coli* strain was isolated by Prof. Alfred Nissle in 1917 from the gut microbiota of a young soldier who did not develop infectious diarrhea, unlike his comrades, while stationed in a *Shigella*-endemic region of Southeastern Europe (Dobrudja/Balkan peninsula) during World War I. The strain was later named after him: *E. coli* strain Nissle 1917. Since then, EcN has become one of the best-characterized probiotics, with its therapeutic efficacy and safety well established. In a recent study, we evaluated the *in vitro* effect of EcN on Caco-2 cell permeability changes induced by mediators from IBS mucosal biopsies compared to asymptomatic controls. We found that EcN strengthens the integrity of the Caco-2 cell monolayer and reverses the increased permeability caused by IBS biopsy mediators. These findings provide strong support for the clinical use of EcN in IBS patients. Indeed, a placebo-controlled clinical trial showed that EcN improved IBS symptoms, particularly in patients with altered gut microbiota, such as those who had experienced gastroenterocolitis or antibiotic treatment.

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FREE PAPERS

ABSTRACT CODE: IBS19486-90

Behavioural outcomes following early life stress: focus on the role of the microbiome-gut-brain axis in psychiatric comorbidity in IBS

L. Wilmes¹, V. Caputi¹, T.F. Bastiaanssen¹, J.M. Collins¹, S.M. O'Mahony², J.F. Cryan², G. Clarke³

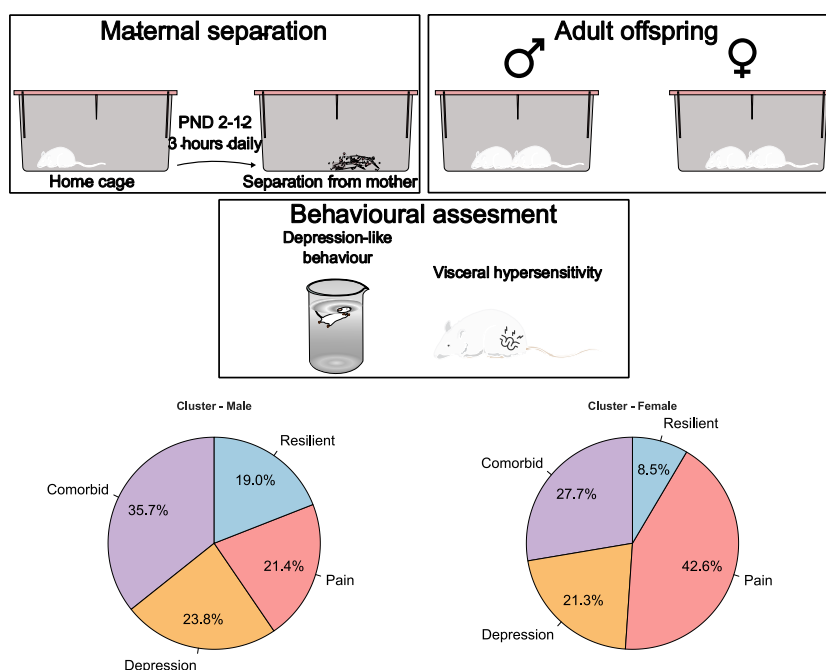
(1) APC Microbiome Ireland, University College Cork - Ireland, (2) APC Microbiome Ireland and Department of Anatomy and Neuroscience, University College Cork - Ireland, (3) APC Microbiome Ireland and Department of Psychiatry and Neurobehavioural Science, University College Cork - Ireland.

Objective: Early-life stress is a risk factor irritable bowel syndrome (IBS), a disorder of gut-brain interaction showing high levels of psychiatric comorbidities. The maternal separation (MS) rodent model recapitulates many prominent features of IBS. This includes perturbation of the microbiota-gut-brain axis and behavioural changes in adulthood that encompasses both abdominal pain and depression-like behaviours. Similar to the clinical population, not all animals exposed to MS present both gastrointestinal and behavioural phenotypes. In this study we aim to identify the role of the microbiota-gut-brain axis in explaining the susceptibility and resilience of distinct pathophysiological consequences of early-life stress in adulthood.

Methods: Sprague-Dawley rat offspring were subjected to MS 3h/day from postnatal day (PND) 2 to 12. Faecal samples were taken for gut microbiota 16S-sequencing and metabolomics. In adult offspring visceral hypersensitivity and depression-like behaviours were assessed using colorectal distension (PND60) and the forced swim test (PND65) respectively. Faecal microbiota transplantation (FMT) into naïve animals was performed, to establish a causal link between gut microbiota configurations and behavioural response.

Results: Maternally separated rats show increased visceral hypersensitivity and a trend for a sex-dependent effect on depression-like behaviour compared to control animals. Behavioural data were processed in a two-step cluster analysis to identify natural groupings within the dataset. The cluster analysis revealed four cluster within the behavioural dataset representing distinct pathophysiological domains as a consequence of early-life stress: resilient, pain, depression-like and comorbid. The faecal microbiota and metabolomics of the clusters show distinct alterations in terms of diversity, genus level differential abundance and functional modules. FMT into naïve animals results in a cluster-specific transfer of depression-like and pain behaviours.

Conclusion: Our study is the first to identify gut-brain phenotypes showing susceptibility and resilience to the distinct consequences of early-life stress. We demonstrate a potential causal role for the gut microbiota in distinct behavioural phenotypes. Communication pathways across the microbiota-gut-brain axis require further evaluation to understand the mechanisms underpinning these important observations. Ongoing research includes evaluation in human cohorts that will provide mechanistic insights and translational relevance respectively.



WORKSHOP I

ABSTRACT CODE: IBS19455-86

Low levels of fecal primary bile acids are associated with altered gut microbiota and colonic immune gene expression in irritable bowel syndrome

W. Sjöland ¹, T. Van Gils ², H. Törnblom ², P. Patel ², K. Sjöberg Jabbar ², F. Bäckhed ², V. Tremaroli ², M. Simrén ²

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Objective: Altered gut microbiota is reported in irritable bowel syndrome (IBS), with microbial metabolites, including bile acids, recognized to be potentially involved in the generation of IBS symptoms. This study aims to clarify the potential link between the gut microbiota composition, fecal bile acid levels, colonic gene expression, and IBS symptoms.

Methods: In patients with IBS (n = 152), and healthy controls without gastrointestinal symptoms (n = 32), we measured fecal bile acids using targeted metabolomics. We profiled the fecal microbiota by whole-genome metagenomics, and analyzed colonic gene expression patterns by RNA sequencing transcriptomics of mucosal biopsies. All individuals completed self-reported questionnaires on GI symptom severity and patterns (GSRS-IBS, Bristol Stool Form Scale-based stool diary). Spearman's correlation with Benjamini-Hochberg multiple testing adjustment was used for correlation analyses, permutational ANOVA for analysis of gut microbial composition on Bray-Curtis dissimilarity, and the Wald test for analysis of differences in colonic gene expression. Differences in bile acid levels were tested with Kruskal-Wallis and posthoc Conover-Iman tests, with Benjamini-Hochberg adjustment.

Results: The levels of the hepatically synthesized primary bile acids, chenodeoxycholic acid and cholic acid, were lower in IBS-C compared to IBS-D ($p = 2.31e-7$), IBS-M ($p = 0.002$) and healthy controls ($p = 2.57e-6$, Figure 1). In IBS patients, levels of primary bile acids correlated with perceived symptom severity of constipation (negatively, $\rho = -0.3$, $p = 0.0002$) and diarrhea (positively, $\rho = 0.26$, $p = 0.00106$). When dividing IBS patients into quartiles by primary bile acid levels, 95 genes in the lowest quartile showed altered colonic expression. Gene-set enrichment analysis revealed enrichment of immune response-related genes, including those involved in chemokine and cytokine activity. Permutational ANOVA tests revealed altered gut microbiota composition in the two lowest quartiles of primary bile acid levels compared to healthy controls ($p = 0.0001$, $p = 0.0003$).

Conclusions: Alterations in fecal primary bile acid levels were associated with stool consistency in IBS, and lower levels of primary bile acids were linked with altered gut microbiota composition and expression of colonic immune-related genes, suggesting involvement of gut microbiota-bile acid-host crosstalk in symptom generation in IBS.

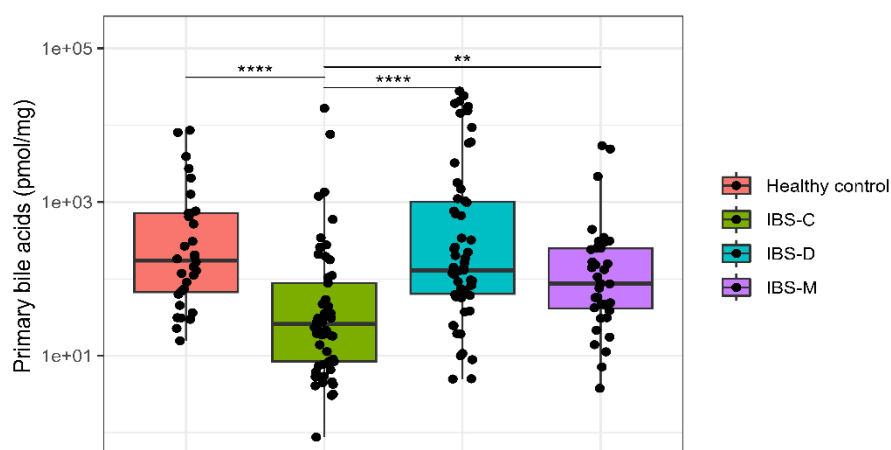


Fig 1. n = Healthy control (32), IBS-C (57), IBS-D (59), IBS-M (36)

ABSTRACT CODE: IBS19455-86

Agreement rate of acute food induced mucosal alterations visualized using confocal laser endomicroscopy in irritable bowel syndrome patients

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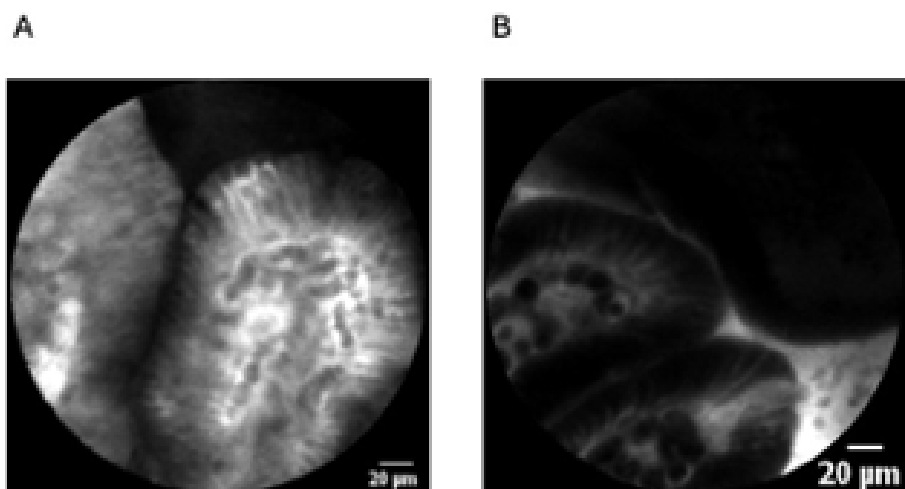
Objectives: Confocal laser endomicroscopy (CLE) enables real-time microscopic visualization of the duodenal mucosa during upper endoscopy and has shown acute food-triggered disruption of the epithelial barrier in the duodenum of irritable bowel syndrome (IBS) patients. While this technique offers novel scientific insights, image interpretation is subjective and agreement rates between observers are unknown. We aimed to assess the agreement rate between assessors regarding acute food induced mucosal changes visualized by CLE in IBS.

Methods: Multicentric, international post-hoc evaluation of CLE recordings. CLE sequences from three centers were blindly assessed. Five investigators from the three participating centers blindly assessed all videos both in real-time and in slow-motion in a random order, including some duplicates.

Mucosa was considered altered if fluorescein leakage AND "cell shedding" were simultaneously present. Outcomes of the global assessment were assessed using the binary outcome "altered" vs. "unaltered". Agreement was quantified using Fleiss' kappa for >2 assessors and Cohens' kappa for 2 assessors – both are reported as κ .

Results: A total of 124 video sequences (94572 frames, 197 minutes of real-time recording) were reviewed. Intraindividual agreement rate was between 90 and 100% ($\kappa=0.74$ -1.00). Overall interobserver agreement rate for all assessors and all videos was 86% ($\kappa=0.69$). Agreement rates were not higher when videos were assessed in slow-motion (81%, $\kappa=0.58$). Among the 3 centers, agreement between all blinded assessors and real-time assessment by the endoscopist ranged from 78% ($\kappa=0.55$) to 86% ($\kappa=0.67$). A total of 63 videos were judged the same by all assessors (100% agreement) – here agreement rates with the endoscopist were 97% ($\kappa=0.91$). Using these videos as reference, a cutoff of 2 altered spots in a recording of 5 spots showed a sensitivity and specificity of 100% for the presence or absence of alterations.

Conclusion: We report here for the first time the interobserver agreement rates of acute food induced mucosal alterations as visualized on CLE. The agreement rates were substantial overall – both among blinded assessors and between blinded assessors and real-time judgement by the endoscopist. Slow-motion revision did not increase agreement rates. A cutoff of 2/5 spots was ideal for the detection of acute mucosal alterations.



ABSTRACT CODE: IBS19483-87

Disorders of Gut Brain Interactions following Salmonella gastroenteritis: a 30-Years longitudinal and prospective study

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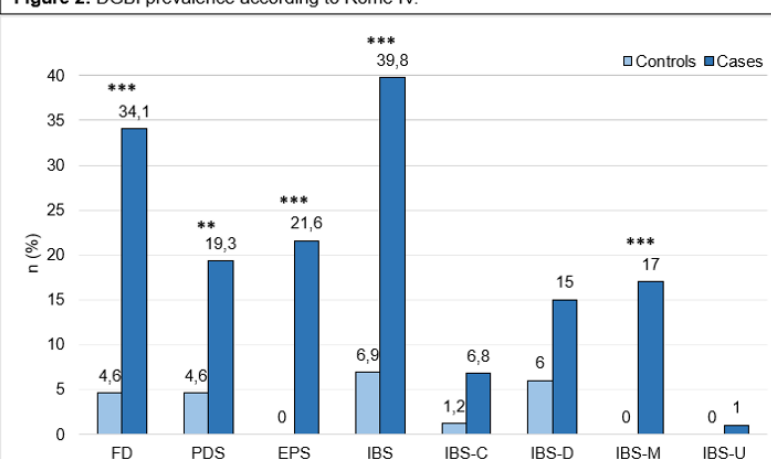
Objective: We investigated the long-term risk of disorder of gut-brain interaction (DGBI), namely irritable bowel syndrome (IBS) and functional dyspepsia (FD), development 30 years post-Salmonella exposure and explored predictive factors.

Methods: In 1994 a Salmonella Enteritidis stool culture-proven outbreak involved 1811 scholars in Bologna. Within this cohort, we randomly included 150 subjects who contracted S. Enteritidis infection in 1994 and 150 individuals, matched for sex, age and geographic origin, who had not experienced bacterial gastroenteritis. We assessed DGBI prevalence after 30 years using Rome questionnaires, gastrointestinal symptoms with the Gastrointestinal Symptoms Rating Scale (GSRS), anxiety and depression with the Hospital Anxiety and Depression Scale (HADS), and quality of life using the SF12 questionnaire (12 item). Longitudinal comparison was assessed with a follow-up carried-out in 2009.

Results: Questionnaires were completed by 175 subjects (58,3%, 88 cases and 87 controls). Among the exposed subjects 39.8% developed IBS and 34.1% FD compared to 6.9% IBS and 4.6% FD in the control group ($p<0.001$). Multivariate logistic regression in the study population revealed predictive factors for IBS: S. Enteritidis infection [Odd-Ratio (OR) 7.056, 95%CI 2.684-18.554, $p<0.001$] and anxiety evaluated in 2024 (OR 1.244, 95%CI 1.105-1.400, $p<0.001$). Predictors for FD included S. Enteritidis infection (OR 10.218, 95%CI 1.259-82.925, $p=0.03$), anxiety assessed in 2009 (OR 1.212; 95%CI 1.058-1.390, $p=0.006$), and Mental component summary (MCS) score (OR 0.047; 95%CI 0.002-0.985; $p=0.049$). Anxiety evaluated in 2024 was predictive of IBS development in exposed subjects, while anxiety in 2009 and MCS score were predictive for FD. An increased IBS and decreased FD occurrence in 2024 vs. 2009 follow-up was found. Exposed subjects exhibited a statistically significant higher rates and severity rates of several gastrointestinal symptoms: abdominal pain, hunger pain, diarrhea, loose stools, urgency, rumbling, bloating, constipation, hard stools and incomplete emptying. Psychiatric comorbidities resulted more common in exposed than non-exposed group, in particular anxiety evaluated in 2024 (31.8% vs 10.3%, $p=0.002$). Finally, the exposed group showed lower scores in all SF12 subcategories compared to the control group.

Conclusion: This study highlights that a bacterial gastroenteritis is a major risk-factor for IBS and FD even after 30 years from the infection.

Figure 2: DGBI prevalence according to Rome IV.



Abbreviations: DGBI: Disorders of Gut Brain interactions. FD: functional dyspepsia. PDS: post-prandial distress syndrome. EPS: epigastric pain syndrome. IBS: Irritable bowel syndrome, IBS-C: IBS subtype constipation, IBS-D: IBS subtype diarrhea. IBS-M: IBS subtype mixed. IBS-U: IBS subtype unclassified.

Footnote:

* $p<0.05$
 ** $p<0.01$
 *** $p<0.001$

ABSTRACT CODE: IBS19439-88

Exploring volumetric disparities in the Emotional Arousal System and their correlation with symptomatology in Severe IBS: Insights from the “MAGONT” STUDY

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Background: This study constitutes an interim analysis of the ongoing research project “MAG-ONT”, which seeks to assess the effect of personalized multidisciplinary treatment (medication, diet, physiotherapy, cognitive behavioural treatment) for severe Irritable Bowel Syndrome (IBS) within a Swedish context. Previous literature has indicated alterations in the Emotional Arousal System (EAS) among IBS patients. The present study investigates volumetric disparities within the EAS which encompass the amygdala, hippocampus, medial and ventrolateral prefrontal cortex (mPFC, vlPFC) as well as the subgenual and pregenual Anterior Cingulate Cortex (sgACC, pgACC) and seeks correlations between these variations and symptomatology.

Methods: This interim analysis included 19 treatment responders who demonstrated a reduction of more than 50 points on the IBS Symptom Severity Scale (IBS-SSS). Symptom measurement as well as T1-weighted MRI scans were performed both before treatment initiation and 12 months afterward. The scans were performed on a 3T MR scanner (Prisma, Siemens Healthineers, Germany). Gray matter volumes of EAS regions were extracted from the normalized segmented images. Post-treatment volume differences were calculated by subtracting post-treatment volume values from pre-treatment measurements. Spearman correlation analysis of post-treatment volume differences were performed to explore the relationship between regions of the EAS and the following scores: IBS-SSS scale, Hospital Anxiety and Depression Scale (HAD), and Short Health Scale (SHS) which assess the impact of IBS on health-related quality of life.

Results: Increases in left amygdala and left sgACC volume after treatment completion were correlated with a better quality of life, and thus reductions in the SHS score ($r(17) = -0.551$, $p = 0.015$ and $r(17) = -0.504$, $p = 0.028$, respectively). Additionally, increases in the volume of the left hippocampus post-treatment were associated with decreased anxiety levels ($r(17) = -0.604$, $p = 0.006$).

Conclusions: These data suggest that multidisciplinary treatment has the potential to induce alterations in the neuroplasticity of the EAS system which are concomitant with symptom improvement. Further data collection is anticipated to reveal additional and stronger correlations, thus contribute to our understanding of the impact of IBS treatment.

WORKSHOP II

ABSTRACT CODE: IBS19476-89

Ondansetron in diarrhoea predominant irritable bowel syndrome and functional diarrhoea: outcomes from a real-life clinical experience

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Objective: 5-HT₃ receptor antagonists are a second line treatment for irritable bowel syndrome with predominant diarrhoea (IBS-D), but there is no evidence on their efficacy for functional diarrhoea (FDr) (Savarino, 2022). Randomized controlled trials show that ondansetron seems to be effective in treating IBS symptoms (Garsed 2014, Gunn 2023), but real-life data are lacking. Hence, our aim was to study the clinical response to ondansetron in patients with IBS-D or FDr in a real-life setting.

Methods: A retrospective analysis on consecutive patients (December 2014 – February 2024) meeting criteria for IBS-D or FDr according to Rome III criteria was conducted in a single Neurogastroenterology outpatient clinic. Only patients prescribed with ondansetron were included. A standardized template was used to collect clinical data and patient-reported response to treatment. Ondansetron was prescribed at initial dosage of 4mg 1 tablet every other day with the possibility of increasing the dosage up to 6 tablets/daily. Clinical response was defined as (i) an improvement in the number of bowel movements per day vs baseline and (ii) firmer stool consistency (Bristol stool form types 3 and 4, 'normal').

Results: 94 patients (female 68.1%, mean age 45 ±15 years old) were included. Among them, 77 (82%) were diagnosed with IBS-D and 17 (18%) with FDr. The mean follow-up duration was 19.1 months (SD±16.71). Seventy patients (74.5%) achieved a clinical response to ondansetron. Response was maintained with ondansetron at a mean dosage of 2.5 tablets/daily (SD±1.5) for a mean follow-up duration of 23.5±17 months. There was no significant difference between the number of IBS-D and FDr patients who responded to ondansetron (table 1). Patients with IBS-D reported a significantly higher improvement in abdominal pain vs baseline (p<0.01, table 1). Twenty-four patients (25.5%) did not respond to ondansetron. Adverse events were significantly higher in non-responders compared to responders (p=0.02, table 1).

Conclusions: This is the first real-life study assessing the response to ondansetron in IBS-D or FDr patients showing long-term reduction in the frequency of bowel movements, improvement in faecal consistency, and reduction in abdominal pain. Our data suggest that ondansetron can be used in FDr patients.

Table 1. Main characteristics of responders and non-responders at baseline and post-treatment.

Main characteristics at baseline	Responders, n (%)	Non-responders, n (%)	p-value*
IBS-D	55 (71.4)	22 (28.6)	0.22
FDr	15 (88.2)	2 (11.7)	
Bristol Scale 5	24 (34.3)	8 (33.3)	1
Bristol Scale 6-7	46 (65.7)	16 (66.7)	
Nausea	30 (42.8)	11 (45.8)	0.81
No Nausea	40 (57.2)	13 (54.2)	
Vomit	14 (20)	1 (4.2)	0.07
No vomit	56 (80)	23 (95.8)	
Urgency	29 (41.3)	8 (33.3)	0.63
No urgency	41 (58.7)	16 (66.7)	
Opioids	14 (20)	7 (29.2)	0.39
No opioids	56 (80)	17 (70.8)	
Neuromodulators	22 (31.4)	10 (41.6)	0.45
No neuromodulators	48 (68.6)	14 (58.4)	
Main characteristics post-treatment	Responders, n (%)	Non responders, n (%)	p-value*
Improvement in pain in IBS-D	40 (72.7)	4 (18.2)	<0.01
No improvement in pain in IBS-D	15 (27.3)	18 (81.8)	
Adverse events	11 (15.7)	10 (41.7)	0.02
No adverse events	59 (84.3)	14 (58.3)	

*Fisher's exact test

Abbreviations: FDr= functional diarrhoea, IBS-D= irritable bowel syndrome with diarrhoea

ABSTRACT CODE: IBS19458-89

Increased disease burden in irritable bowel syndrome with comorbidities

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Objective: IBS patients frequently suffer from comorbid mental (anxiety or depression) or somatic (fibromyalgia or chronic fatigue) conditions. In this pan-European project (the DISCOVERIE project), IBS patients with and without comorbidities were compared with disease controls and healthy controls, to further elucidate the effect of comorbid conditions in IBS on the disease burden.

Methods: We included participants from nine different European centers – IBS patients according to Rome IV criteria, disease controls (patients with comorbid conditions; i.e. fulfilling diagnostic criteria for anxiety, depression, fibromyalgia and/or chronic fatigue, but no IBS) and healthy controls. The participants were further divided into eight groups based on presence or absence of comorbidities: IBS with no/ mental/ somatic/ mental and somatic comorbidity, disease controls with mental/ somatic/ mental and somatic comorbidity, and healthy controls. The severity of IBS symptoms (IBS-SSS), depression (PHQ-9), anxiety (GAD-7), somatic symptoms (PHQ-15), fibromyalgia symptoms (FIQ) and general and mental fatigue (MFI) were compared between groups.

Results: In total, 849 participants (median age 44 years) were included. A majority were females (76%), with the most pronounced female predominance (83%-86%) in the IBS groups with comorbidities. The most severe IBS symptoms were noted among IBS with both mental and somatic comorbidity and IBS with somatic comorbidity (Figure 1). In IBS, the severity of IBS symptoms increased gradually with increasing number of comorbidities (partial eta squared: 0.053, $p < 0.001$), as did severity of anxiety, depression, somatic symptoms and general fatigue (partial eta squared: 0.214, 0.247, 0.240, 0.239, respectively, all $p < 0.001$). The groups with both mental and somatic comorbidity had the highest levels of anxiety, depression and mental fatigue. Somatic symptoms and general fatigue were most severe among IBS and disease controls with somatic comorbidity or both somatic and mental comorbidity. Fibromyalgia symptoms were most severe in IBS and disease controls with somatic comorbidity.

Conclusion: This large European multicenter study strengthens the importance of the impact of mental and somatic comorbid conditions and symptoms in IBS, and their influence on outcomes and disease burden.

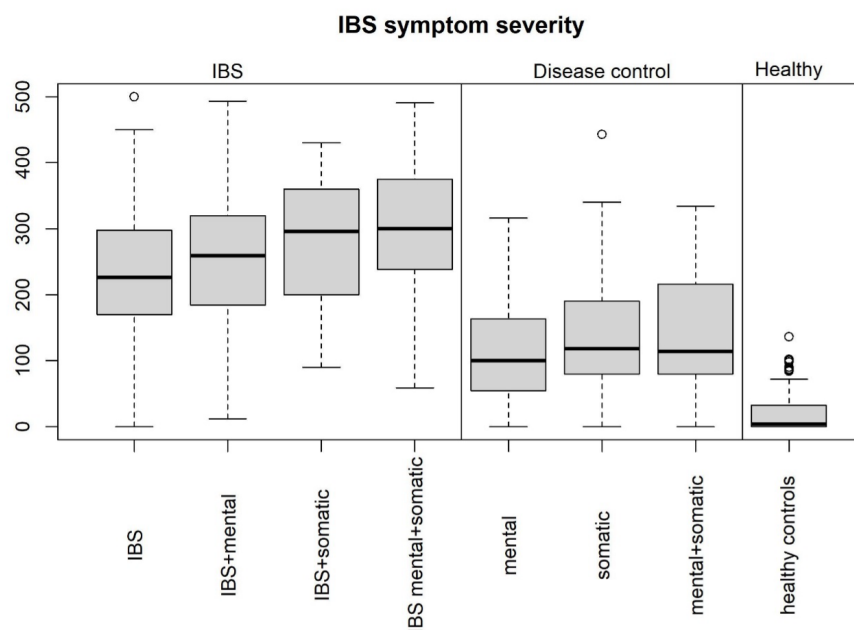


Figure 1: IBS symptom severity (IBS-SSS) in the different study groups: IBS (N=268), IBS+mental (N=173), IBS+somatic (N=48), IBS mental+somatic (N=124), disease control mental (N=58), disease control somatic (N=51), disease control mental+somatic (N=52), healthy controls (N=75).

WORKSHOP II

ABSTRACT CODE: IBS19465-87

Randomized controlled trial - Effects of fructans on symptoms and hydrogen production in IBS-D patients on a low FODMAP diet

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Objective: Fermentable oligo-, di-, monosaccharides and polyols (FODMAP), including fructans, may trigger gastrointestinal (GI) symptoms in diarrhea-predominant irritable bowel syndrome (IBS-D). We aimed to assess the link between fructans intake, GI symptoms, and hydrogen production in IBS-D patients following a low FODMAP diet, by using a gas sensing capsule.

Methods: This interim report is part of an ongoing trial (NCT04830410) involving 24 IBS-D patients (Rome IV, age 29±5 years, 83% females). Participants followed a three-week low FODMAP diet with provided meals. During the third week, participants were challenged with either fructans or maltodextrin placebo; 6g thrice daily (BENEO GmbH). The patients reported GI (GSRS-IBS), psychological (HADS, VSI), and non-GI somatic symptoms (PHQ-12) at baseline and end of weeks 2 and 3. Stool form (BSF) was recorded daily for all bowel movements. Gut fermentation was evaluated at baseline and end of week 3 using a gas sensing capsule (Atmo Biosciences) measuring overall and regional luminal hydrogen concentration, as well as hydrogen and methane concentrations in expired air after a standardized breakfast. Colonic transit time was also determined using the gas sensing capsule.

Results: The low FODMAP diet reduced severity of GI symptoms, including overall GI symptoms, abdominal pain, bloating, and diarrhea at end of week 2. At end of week 3, no differences in GI symptoms were observed comparing placebo and fructans challenge, but there was a trend for more abdominal bloating reported in the fructans group (Figure).

At baseline, luminal hydrogen and breath test concentrations were similar between placebo and fructans groups. The magnitude of gas production, both luminal and breath test concentrations, was higher in the fructans group compared with placebo at end of week 3. Colonic fermentation patterns remained unchanged with fructans compared to the placebo. Hydrogen concentration distribution across different parts of the colon (quartiles of colonic transit time) was similar, with higher concentrations observed in the distal parts (Figure).

Conclusion: In IBS-D patients adhering to a low FODMAP diet, supplementing with 6g thrice daily (=18 gram/day) of fructans resulted in elevated colonic fermentation, as detected by a gas sensing capsule, without significant worsening of GI symptoms.

Figure. Symptoms, transit time, and fermentation in IBS-D patients following a low FODMAP diet (three weeks), challenged with fructans or placebo during the third week

	Fructans (n=12)	Placebo (n=12)	P
GSRS-IBS			
Total	3.5 ± 1.0	2.9 ± 0.9	0.14
Abdominal pain	3.9 ± 1.2	3.5 ± 1.1	0.40
Bloating	4.2 ± 1.6	3.1 ± 1.2	0.07
Diarrhea	3.1 ± 0.9	3.0 ± 1.2	0.85
Constipation	2.9 ± 1.7	2.2 ± 0.9	0.21
Satiety	3.3 ± 1.4	2.4 ± 1.4	0.10
Stool frequency/d	1.7 ± 0.5	1.7 ± 0.7	0.92
Stool form (BSFS)	4.1 ± 0.7	4.1 ± 1.1	0.94
HADS			
Anxiety	7 ± 4	6 ± 4	0.40
Depression	3 ± 3	3 ± 3	0.69
Non-GI somatic symptoms (PHQ12)	6 ± 4	6 ± 4	0.81
GI-specific anxiety (VSI)	39 ± 10	28 ± 21	0.12
Colonic transit time (h)	17 (14 – 27)	18 (16 – 21)	0.96
Gas sensing capsule			
Overall hydrogen concentration (%)	5.2 (4.0 – 13.3)	2.6 (1.2 – 4.4)	0.03
Peak hydrogen concentration (%)	9.3 (5.7 – 19.3)	4.0 (1.7 – 7.2)	0.03
Time of hydrogen peak (% CTT)	82 (59 – 92)	78 (31 – 89)	0.37
Hydrogen concentration per quartile CTT			
Q1	2.4 (2.0 – 6.4)	1.2 (0.7 – 2.5)	0.04
Q2	5.4 (3.1 – 16.2)	2.4 (1.0 – 4.7)	0.06
Q3	10.4 (3.4 – 20.7)	2.8 (1.4 – 4.1)	0.03
Q4	6.9 (4.2 – 16.8)	3.2 (1.3 – 5.3)	0.02
Breath testing, ppm			
Hydrogen, mean (95% CI)	15.5 (11.1 – 19.9)	5.8 (1.7 – 10.0)	0.03
Methane, mean (95% CI)	4.8 (3.5 – 6.3)	2.3 (1.0 – 3.7)	0.01

Mean ± standard deviations or Medians with interquartile range.

ABSTRACT CODE: IBS19432-81

Dietary macronutrient and FODMAP intake: role in response to the elimination and reintroduction phase of a low FODMAP diet

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Objective: We previously showed that, after the strict low fermentable oligo- di- monosaccharides and polyols (FODMAP) diet elimination phase, blinded reintroduction reveals a personalized pattern of symptom recurrence by individual FODMAP-triggers (Van den Houte et al. Gastroenterology 2024). However, the role of dietary macronutrient and FODMAP intake at baseline and its changes during the diet in determining treatment success in tertiary care IBS have not been established in detail. We aim to evaluate dietary macronutrient and FODMAP intake at baseline and during low FODMAP diet (LFD) and their relationship to symptom severity and FODMAP-triggers in IBS patients.

Methods: Seven days food diaries were collected from tertiary care IBS patients during regular diet and LFD. Macronutrient and FODMAP analysis was performed using MyFitnessPal™ and the Monash FODMAP calculator. Individual FODMAP-triggers were identified after blinded reintroduction of individual FODMAP powders. Baseline FODMAP intake was compared in patients with and without identified triggers. Patients filled out questionnaires of IBS symptom severity scores (IBS-SSS) 2-weekly. Data are reported as average±SD or median (IQR) and compared using Wilcoxon test and Spearman correlation coefficient.

Results: Data from 70 IBS patients (86% female, 35±1years, BMI 24.6±0.6kg/m²) were analyzed. Results in table 1 show a significant reduction in calories, fat, carbohydrates, sugar, and overall/individual FODMAP intake compared to baseline. On the LFD, significant improvements were observed in IBS-SSS, abdominal pain, bloating, flatulence, and impact on life (table 1). The response rate (≥50 point reduction on IBS-SSS) correlated with the reduction in total FODMAP intake (r=0.3,p=0.02). Daily FODMAP intake showed no correlation with individual IBS symptoms at baseline. According to the blinded reintroduction, for a particular FODMAP, baseline individual intake was not significantly higher in patients in whom this FODMAP triggered symptom recurrences compared to patients in whom this was not identified as a trigger.

Conclusions: Our findings confirm a reduced intake of macronutrients and FODMAPs during LFD, compared to baseline. A correlation was found between response rate and the change in total FODMAP intake during LFD, compared to baseline. The amount of specific FODMAP intake at baseline did not determine their ability to trigger symptoms upon blinded reintroduction.

	Baseline	LFD	p value
Calorie (kcal) and macronutrient (g) intake			
Calories	1648[1389-2098]	1505[1321-1841]	<0.0001
Fat	66.2[49.3-89.8]	58.7[49.6-74.7]	0.043
Carbohydrates	185[159.5-228.6]	175.7[139.8-212.7]	0.0107
Fibre	13.3[8.3-16.8]	14.1[9.5-17.7]	0.8752
Sugar	42.8[28.9-61.7]	37.4[24.4-50.7]	0.0007
Protein	67.0[50.9-80.4]	64.4[50.7-79.9]	0.65
Total and individual FODMAP intake (g)			
Total FODMAPs	10.1[6.5-14.9]	2.6[2.1-3.5]	<0.0001
Excess fructose	1.0[0.5-1.7]	0.6[0.4-1.0]	<0.0001
Lactose	4.3[1.5-7.9]	0.2[0.1-0.6]	<0.0001
Sorbitol	0.3[0.2-0.8]	0.03[0.01-0.1]	<0.0001
Mannitol	0.05[0.02-0.1]	0.02[0.01-0.05]	<0.0001
Fructans	2.4[1.8-3.0]	1.0[0.8-1.3]	<0.0001
GOS	0.7[0.5-1.0]	0.4[0.2-0.6]	<0.0001
IBS symptoms			
IBS-SSS	300[230-373]	105[60-152]	<0.0001
Number of stools	1.1[0.7-2.2]	1.2[0.7-1.8]	0.2715
Duration abdominal pain	3.5[2.3-4.8]	1.7[0.8-2.8]	<0.0001
Severity abdominal pain	3.3[2.0-4.4]	1.6[0.7-3.1]	<0.0001
Bloating	4.0[2.1-4.9]	1.8[0.5-3.0]	<0.0001
Flatulence	3.6[1.8-4.4]	2.1[1.0-3.0]	0.0003
Impact on life	2.9[1.5-4.5]	1.7[0.5-3.1]	<0.0001

Table 1. Comparison between food intake and IBS symptoms at baseline vs low FODMAP diet (LFD)

WORKSHOP III

ABSTRACT CODE: IBS19448-88

Intestinal Permeability in Irritable Bowel Syndrome: Results from the Multicentric European Study DISCOVERIE

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(1) KU Leuven, Leuven - Belgium, (2) Fundació Hospital Universitari Vall d'Hebron - Institut de Recerca, Barcelona - Spain, (3) Goetheborgs Universitet, Göteborg - Sweden, (4) Università di Bologna, Bologna - Italy, (5) Universitatea De Medicina Si Farmacie Iuliu Hatieganu, Cluj- Napoca - Romania, (6) Maastricht University, Maastricht - Netherlands

Objective: Irritable bowel syndrome (IBS) is a disorder of brain-gut interaction often accompanied by psychiatric and/or somatic comorbidities. Intestinal barrier dysfunction has long been hypothesised to be a key player in IBS pathophysiology. However, it is unknown how psychiatric and somatic comorbidities affect intestinal barrier dysfunction. This study aims to assess intestinal barrier function in a large multicentric cohort of adult IBS patients with and without psychiatric/somatic comorbidities.

Methods: IBS patients (Rome IV) with (N=197) and without (N=171) comorbidities, and healthy volunteers (N=23), were included in six European hospitals. Intestinal permeability (IP) was assessed in vivo with the lactulose-mannitol-sucralose test (LMS) and ex vivo in colonic biopsies using Ussing chambers. Sugar concentrations in the urine were assessed through HPLC-ELSD and GC-MS. The L/M ratio after 2 hours was used as an estimation of the small intestinal permeability, and the %S excreted and the S/M ratio from 2 to 24 hours, for colonic permeability. Colonic biopsies were collected from 17 controls and 18 IBS patients and mounted in Ussing chambers to measure the paracellular permeability to FITC-dextran (4 kDa).

Results: When compared with healthy controls, L/M ratio did not differ in IBS patients with ($p=0.33$) or without comorbidities ($p=0.44$, Fig. 1A). Moreover, the %S excreted and S/M were not altered in IBS patients with (respectively $p=0.3$ and $p=0.09$) and without ($p=0.14$, $p=0.1$) comorbidities (Fig. 1B, C). Interestingly, when comparing results from IBS patients among recruiting hospitals in different parts of Europe, significant differences were found in L/M ratio ($p<0.0001$, Fig. 1D), %S ($p<0.0001$, Fig. 1E), and S/M ratio ($p<0.0001$, Fig. 1F). Lastly, paracellular permeability assessed ex vivo in colonic biopsies was not different between IBS patients and controls ($p=0.46$).

Conclusions: These results suggest that psychiatric and somatic comorbidities do not alter small intestinal and colonic permeability in IBS patients. Interestingly, our results highlight a strong variability between IBS patients from different countries, which may be explained by lifestyle, environmental, and genetic factors. Further investigations are needed to better understand these findings.

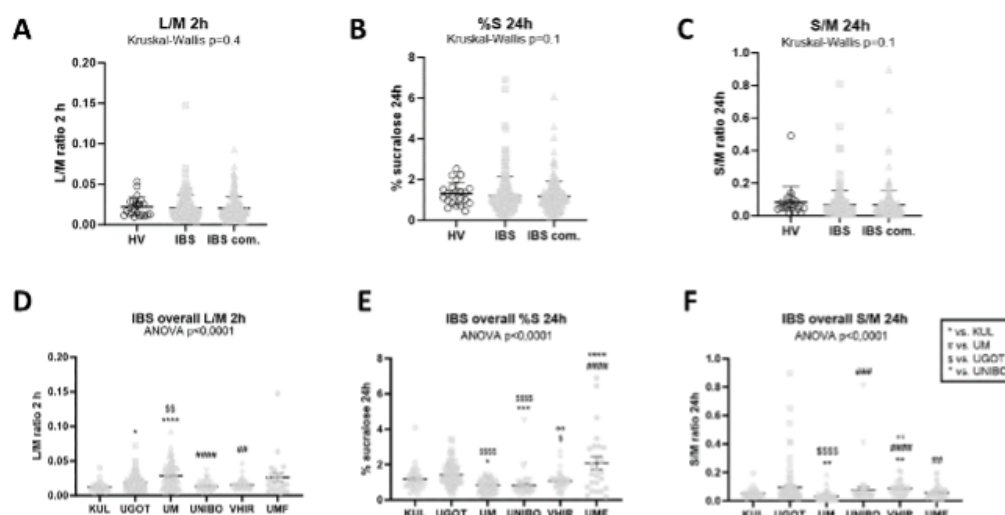


Figure 1: KUL= KU Leuven (BE), UGOT= University of Gothenburg (SE), UM= University of Maastricht (NL), UNIBO= University of Bologna (IT), VHIR= Vall d'Hebron Institut de Recerca (ES), UMF= Universitatea de Medicină și Farmacie (RO).

ABSTRACT CODE: IBS19450-81

Exploring nano-antibodies targeting Trypsin-3: A promising tool for alleviating symptoms of Irritable Bowel Syndrome

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Although the exact origin of IBS symptoms remains unclear, a growing number of findings suggests that immune activation, mucosal low-grade inflammation, altered metabolism of bacterial flora and/or increased intestinal permeability play a major role in the pathophysiology of IBS. The search for mediators and possible treatments of IBS-associated visceral hyper-sensitivity has been extremely active over the past decade. Our research has revealed increased proteolytic activity at the mucosal level in IBS patients, with Trypsin-3 identified as the most deregulated protease released by the epithelium. Additionally, we have demonstrated that Trypsin-3 induced loss of epithelial barrier and activated submucosal and sensory neurons contributing to visceral hyper-sensitivity. However, no endogenous inhibitor of Trypsin-3 has been identified. The Trypsin-3 amount is increased in the colon of all subtypes of patients with IBS, underscores its significance across patient populations, with Trypsin-3 inhibitors emerging as a new therapeutic option for the treatment of IBS.

In response, we developed a screening strategy to identify nano-antibodies (or single domain antibodies) as Trypsin-3 inhibitor. Among one billion nano-antibodies screened, we identified 5 selective and strong binders of Trypsin-3, with two effectively neutralizing the target protease. Furthermore, we engineered a specific Trypsin-3 inhibitor by fusing two nano-antibodies, exhibiting high efficacy with KI in the nM range and KD lower than pM. To facilitate targeted delivery, we designed a probiotic bacterium, *E. coli* Nissle, capable of secreting the inhibitor onto the intestinal mucosa surface. To bring the in vivo proof of concept, we will treat the Trypsin-3 transgenic mice which over-express Trypsin-3 specifically in intestinal epithelial cells and reproduce a number of symptoms present in IBS such as visceral hyper-sensitivity and low-grade mucosal inflammation.

In conclusion, our findings shed light on the pivotal role of Trypsin-3 in the pathogenesis of IBS and highlight its potential as a therapeutic target. The identification of selective nano-antibodies capable of inhibiting Trypsin-3 coupled with the innovative delivery approach using probiotic bacteria, represents a multifaceted strategy to effectively target Trypsin-3 in the intestinal mucosa. These advancements offer promising prospects for managing IBS and underscore the therapeutic potential of Trypsin-3 inhibition in this complex disorder.

WORKSHOP III

ABSTRACT CODE: IBS19462-84

Domain-specific impact of sucrase-isomaltase genetic variation on IBS risk and food preference**L. Torices¹, F. Bonfiglio², C. Esteban-Blanco³, A. Zamfir¹, M. D'amato¹**

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Background and aims. Hypomorphic (dysfunctional) variants of the sucrase-isomaltase (SI) gene affect IBS risk and the efficacy of specific carbohydrate-restricted diets. Potential effects on carbohydrates intake and/or preference are also hypothesized based on recent work in SI knockout mice. However, SI encompasses dual enzymatic activity accounted for by two distinct functional domains, namely sucrase (SUC) and isomaltase (IM), respectively hydrolyzing sucrose and isomaltose or starch-derived oligosaccharides. This study aimed to explore the impact of SI carrier status on IBS and food preference as a function of genetic variation in individual SUC and IM domains.

Methods. We extracted genetic information, IBS diagnoses and food liking traits from 134,766 individuals from UK Biobank (UKBB), a large population-based cohort. Rare (allelic frequency <1%) hypomorphic variants from whole exome sequencing data were computationally predicted using the AlphaMissense bioinformatic tool. Association analyses (via age- and sex-adjusted logistic and ordinal regression) were performed collapsing SI variants into SI-SUC and SI-IM carrier groups, tested vs IBS and food liking items (individually and stratified according to sucrose content).

Results. Carriers of SI-SUC hypomorphic variants were at increased risk of IBS based on medical records from general practitioners (beta[SE] = 0.21[0.07], padj = 0.005), hospital admissions (beta[SE] = 0.19[0.06], padj = 0.005), or both (beta[SE] = 0.21[0.08], padj = 0.009). They also exhibited significant aversion to cake icing, the food with the highest sucrose content (72g/100g, beta[SE] = -0.14 [0.04], padj = 0.02). In general for SI-SUC variants, genetic effect estimates relative to liking of single food items showed significant inverse correlation with corresponding sucrose content (p-value = 0.01). No significant associations were observed for SI-IM hypomorphic variants.

Conclusions. The impact of SI hypomorphic variants on food preference and IBS risk appears to be accounted for mostly by genetic variation affecting the sucrase domain/activity of the enzyme. Our results improve current understanding of the mechanisms behind SI role in carbohydrate digestion, and are of potential relevance to personalizing therapeutic (dietary) options in IBS. Further research is needed to address the physiological/biochemical mechanisms underpinning SI dysfunction associated with sucrose-rich food avoidance and IBS risk.

POSTER SESSION

ABSTRACT CODE: IBS19499-94 – POSTER NO. 1

Involvement of enteric glial cells in the pathophysiology of irritable bowel syndrome

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Irritable bowel syndrome (IBS) is a common disorder of gut-brain interactions. Alongside symptoms such as chronic abdominal pain and disturbed bowel habits, patients may also suffer from extra-intestinal symptoms such as depression and anxiety. Although the pathophysiology of IBS remains unclear, studies have implicated abnormalities in motility, visceral sensation, an impaired intestinal epithelial barrier (IEB), and an altered enteric nervous system (ENS). Gastrointestinal functions are predominantly controlled by the ENS, an intrinsic network composed of neurons and enteric glial cells (EGC) that communicate bidirectionally with the central nervous system. Known for strengthening the IEB, interacting with immune cells and overall regulating gastrointestinal functions, EGC appears to be intimately associated with the pathophysiology of IBS. However, their specific role remains unclear and correlations between EGC activity and clinical findings are lacking.

Overall, 29 patients with moderate to severe IBS were included in a clinical trial following a one-year multi-modal patient-centered treatment. Colonic mucosal biopsies were collected from patients with IBS before and after treatment. The passages of 4kDa Fluorescein isothiocyanate (FITC) and horseradish peroxidase enzyme (HRP) were measured to assess respectively paracellular and transcellular permeability in Ussing chambers. Additionally, two EGC markers were quantified in colonic biopsies from patients with IBS before and after treatment, as well as in 18 biopsies obtained from healthy controls (HC).

In Ussing chambers, both paracellular and transcellular permeability significantly decreased post treatment. Immunofluorescence analysis of colonic mucosa from patients with IBS revealed a significant increase in the number of EGC expressing S100 calcium-binding protein B (S100 β) and glial fibrillary acidic protein (GFAP) when compared to HC indicating a higher presence of EGC during IBS. However, no difference in the number of EGC was observed in IBS colonic mucosa between before and after treatment.

These preliminary observations showed that after treatment, patients with IBS have a decrease in intestinal permeability indicating an improved barrier function. Additionally, our findings also suggest an involvement of EGC during IBS with an alteration in the cell number compared to HC. Further investigation are needed to assess correlations to IEB measurements, immune responses and clinical findings.

ABSTRACT CODE: IBS19463-85 - POSTER NO. 2

Evaluation of the beneficial effects of a product containing gamma-aminobutyric acid (GABA) in post-inflammatory irritable bowel syndrome: a preclinical study

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Objective. Visceral pain is the most frequent digestive issue, which can be the outcome of long-term inflammation, including inflammatory bowel diseases. In this regard, gamma aminobutyric acid (GABA) and *Melissa officinalis* (mo) are recognized to have positive effects on the digestive system. This study evaluated the effects of a compound containing GABA and mo (GABA-mo 5:1) in inflammation-induced intestinal damage and visceral pain.

Methods. Colitis was induced in rats by intrarectal administration of 2,4-dinitrobenzenesulfonic acid (DNBS). DNBS-treated animals received GABA-mo, starting 3 days before DNBS administration, until 14 days after colitis induction (preventive protocol), or starting 7 days after DNBS until day 21 (curative protocol). Visceral pain was assessed by measuring the visceromotor response (VMR) and the abdominal withdrawal reflex (AWR) to colorectal distension on day 7, 14 (both protocols) and 21 (curative protocol) after DNBS administration. At the end of treatments, intestinal damage, colonic inflammation and spinal cord glial activation were evaluated.

Results. In the preventive protocol, GABA-mo reduced AWR at day 14 but had no effect on VMR. In the spinal cord, treatment with GABA-mo significantly lowered Iba-1 reactivity (index of glial activation). In the colon, the supplement significantly decreased malondialdehyde (MDA, index of oxidative stress) and IL-1 β levels, and counteracted the decreased expression of claudin-1. Moreover, GABA-mo normalized the increased levels of plasma lipopolysaccharide binding protein (LBP, index of altered intestinal permeability). In the curative protocol, GABA-mo significantly reduced visceral hypersensitivity in DNBS-treated animals, at both day 14 and 21. In the spinal cord, GABA-mo significantly reduced GFAP positive cell density (index of glial cells activation). Histological evaluations highlighted a significant protective effect of GABA-mo against DNBS-induced colonic damage. In colonic tissues, MDA and myeloperoxidase (index of leukocyte infiltration) levels were reduced, while the decreased colonic claudin-1 expression was normalized. In addition, the increased levels of plasma LBP were normalized by GABA-mo.

Conclusions. GABA-mo, particularly in the curative protocol, was able to reduce visceral pain and intestinal inflammation, likely through a reinforcement of intestinal barrier integrity, and could represent a suitable approach for the management of abdominal pain, especially in the remission stages of colitis.

ABSTRACT CODE: IBS19435-84 - POSTER NO. 3

Cromolyn inhibits TRPA1 mediated visceral hypersensitivity via GPR35

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Objective: The mast cell stabiliser cromolyn improves symptom severity scores in people with IBS. Our single cell sequencing data has shown that GPR35, the cognate receptor for cromolyn, is highly expressed on colonic nociceptors suggesting that the clinical benefits of cromolyn may be mediated via a direct inhibitory effect on visceral nociceptors.

Methods: Expression of GPR35 alongside other Gi/o-coupled receptors, were examined in silico using our RNAseq database of colonic sensory neuron transcript expression (Hockley et al Gut 2019) and plotted relative to expression of the ion channel TRPA1, a transducer of noxious distension of the bowel. Alongside this the binding and activation of GPR35 by cromolyn was confirmed by in silico docking simulations and in vitro BRET assays of G protein activation measured using the TRUPATH biosensor platform. The effect of cromolyn on TRPA1 mediated colonic afferent activation and sensitisation of distension evoked firing was examined in tissue from wild type and GPR35^{-/-} mice. Finally, the contribution of substance P (SP) release to cromolyn mediated inhibition of TRPA1 induced colonic afferent activation was studied by pre-treatment with the NK1 receptor antagonist aprepitant, measurement of SP release by ELISA and effect on gut contractility.

Results: GPR35 is highly expressed in TRPA1 expressing colonic nociceptors. Consistent with this and its agonist activity at GPR35 leading to dissociation of Gi/o subunits, cromolyn pre-treatment produced a marked inhibition of the colonic afferent response to the TRPA1 agonist ASP7663 and attenuated the mechanosensitisation evoked by ASP7663 at noxious distending pressures. These effects of cromolyn were lost in tissue from GPR35^{-/-} mice. Further investigation revealed that responses to TRPA1 stimulation with ASP7663 were mediated through the release of SP. An effect blocked by cromolyn pre-treatment.

Conclusions: Our data demonstrates that cromolyn acts at GPR35 to inhibit TRPA1 mediated activation and sensitisation of colonic nociceptors through SP release. These findings provide a mechanism of action for the symptom improvement reported with cromolyn in people with IBS and highlight the utility of GPR35 agonists to deliver non-opioid analgesia for the treatment of abdominal pain.

ABSTRACT CODE: IBS19459-90 - POSTER NO. 4

The effect of sucrase-isomaltase (SI) gene variation on gut microbiota composition: a population-based survey

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Background & objective. Sucrase-isomaltase (SI) is a brush border disaccharidase central to the digestion of dietary carbohydrates, through the break-down of sucrose, maltose, short glucose oligomers, some dextrans, and starch. The importance of this enzyme is highlighted by the appearance of gastrointestinal manifestations in individuals carrying defective (hypomorphic) SI gene variants, as shown in recessive congenital SI deficiency (CSID) and, possibly, irritable bowel syndrome (IBS). Absent or reduced SI activity leads to the accumulation of undigested disaccharides in the lower bowel, leading to osmotic diarrhoea and excessive fermentation by the resident microbiota triggering abdominal pain and distention. The aim of the present study was to identify potential shifts of microbiota composition in SI-carriers at the population level, which may be relevant to personalise diagnostic and therapeutic (dietary) approaches in IBS.

Methods. We surveyed 8,648 individuals of European ancestry from two large population-based cohorts with genotype, metagenome and dietary data available. SI hypomorphic variants were computationally predicted using the bioinformatic tools M-CAP and CADD and tested for association with the microbiota composition (assessed through shotgun metagenomic sequencing of stool samples at the genus and species level), using age- and sex-adjusted linear regression analysis with dietary carbohydrate intake as interaction term.

Results. Bacteria of the genera Parabacteroides (species Parabacteroides distasonis and Parabacteroides merdae) and Bacteroides (Bacteroides plebeius and Bacteroides clarus) were significantly associated with the common Val15Phe hypomorphic variant (previously shown to increase IBS risk) as a function of carbohydrate intake (false discovery rate, FDR < 0.05). In particular, P. distasonis abundance was increased under a higher carbohydrate intake in Val15Phe IBS-risk variant homozygotes in both cohorts.

Conclusions. Our results suggest that SI genotype shapes the gut microbiota composition in hypomorphic carriers at the general population level, possibly conferring an indirect advantage to bacterial species (Parabacteroides spp.) that thrive in a disaccharide-enriched colonic milieu. This warrants future studies to further our understanding of the mechanisms that might link SI gene variation, gut microbiota composition and carbohydrate intake to IBS predisposition.

ABSTRACT CODE: IBS19418-85 - POSTER NO. 5

Biallelic variants in PIEZO1 underlie a novel form of enteric dysmotility disorder

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Background and specific objective: Chronic intestinal pseudo-obstruction (CIPO) and enteric dysmotility (ED) are two clinical phenotypes characterized by severe gut dysmotility with / without sub-obstructive intestinal crisis, respectively. Both CIPO and ED show a high degree of clinical and genetic heterogeneity, often hindering the identification of the causative defects. Using whole exome sequencing (WES), this study aimed to identify the genetic abnormalities in selected patients with no mutations in known CIPO- and ED-associated genes.

Methods: WES was performed on genomic DNA extracted from peripheral blood (family 1) or gut tissue biopsy (patient 2). Fibroblast cells obtained from skin biopsies of patients and controls were used for functional studies, including mitochondrial activity, intracellular and mitochondrial calcium measurement, and cell motility studies.

Results: We identified biallelic missense variants in PIEZO1 in two pedigrees: in two sisters with CIPO and leukoencephalopathy (family 1) and in a patient with ED (patient 2). PIEZO1 is a mechanosensitive, non-selective cation channel permeable to Ca²⁺ [1]. In vitro studies from the two CIPO and the ED patients revealed abnormalities in the cytoskeleton, highlighted by the presence of actin stress fibers, an abnormally reduced cell motility and decreased Ca²⁺ levels in mutant cells. A significant decrease in ATP levels and reduced vitality in galactose, hallmarks of mitochondrial dysfunctions, were also shown in mutant cells. In concordance, metabolomic analyses identified alterations of specific mitochondrial metabolites.

Conclusions: Mutations in PIEZO1 have not been previously associated to CIPO and ED, rather to the dominant dehydrated hereditary stomatocytosis disease and to a recessive form of lymphedema. These clinical phenotypes were not reported in the herein described patients. Functional studies indicated that the mutant mechanoreceptor induced a severe mitochondrial impairment, possibly through an impaired Ca²⁺ homeostasis. Ongoing analyses focus on the detailed characterization of the cell structural and functional defects caused by PIEZO1 mutations.

Our findings provide support to a novel recessive form of CIPO and ED due to biallelic variants in PIEZO1, thus increasing the knowledge of the genetic basis underlying these gastrointestinal motility disorders.

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ABSTRACT CODE: IBS19471-84 - POSTER NO. 6

Cuprizone-induced demyelination affects central and enteric nervous system of juvenile mice in a gender-dependent manner

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Objective: Multiple sclerosis (MS) is a chronic demyelinating disease of the central nervous system (CNS) with a female predominance, even if male patients have a worse prognosis with faster neurological and physical decline. Several studies evidence enteric neurodegeneration and gliosis prior to the onset of CNS lesions, proposing the enteric nervous system (ENS) as the first site of MS origin. The aim of the present study was to investigate the impact of gender on cuprizone-mediated demyelination in the microbiota-gut-brain axis.

Methods: Both male and female C57/Bl6 (3±1 weeks old; N=30/group) mice were fed with standard diet (SHAM) only or standard diet supplemented with cuprizone (CPZ; 0.25% w/w) for 4 weeks. Behavioral, cognitive and locomotor functions were assessed using the open field and beam walking tests. Expression of myelin- and inflammation-related genes were analyzed by RT-qPCR in brain samples. Ileal fecal 16S rRNA gene sequencing analysis was performed for microbiota profiling. GI transit was measured by the distribution of nonabsorbable FITC-dextran throughout the GI tract. Ex vivo functional analysis was performed on ileal segments following: (i) cumulative addition of carbachol (CCh; 0.001–100 µM); (ii) electric field stimulation (EFS, 0–40 Hz). The distribution of neuronal (HuC/D, ChAT) and glial (GFAP) markers was determined by immunohistochemistry and confocal microscopy in longitudinal-muscle-myenteric plexus whole-mount ileal preparations.

Results: In both genders, CPZ administration caused behavioral, cognitive, and motor deficits, associated to myelin dysregulation and neuroinflammation in brain areas. Gender-dependent differences were found in CPZ-induced intestinal dysmotility and dysbiosis. Only in male-treated mice, a significant decrease in receptor- and not-receptor mediated excitatory neuromuscular responses (-41% of Emax to CCh; -43% of 40-Hz EFS-elicited contractions; P<0.001) was observed. Altered ENS neurochemical coding was revealed by a reduced number of HuC/D+ neurons (-8%; P<0.001) and ChAT immunofluorescence (-20%; P<0.001), together with a marked increase in GFAP distribution (+47%; P<0.01), without any signs of myenteric neurodegeneration in females.

Conclusions: Our results demonstrate that cuprizone-induced demyelination determines both central and intestinal morpho-functional anomalies in a gender-dependent manner. Further studies are warranted to identify possible predictive biomarkers/pharmacological targets along the microbiota-gut-brain pathways for improving MS treatment.

ABSTRACT CODE: IBS19472-85 - POSTER NO. 7

Toll-like receptor 4 signaling interaction with enteric serotonergic neurotransmission in murine models of small intestinal inflammation

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Objective: Changes in serotonin (5-HT) levels, deregulated serotonergic pathways, associated to polymorphisms in genes encoding Toll-like receptor 4 (TLR4) have been observed in IBD patients and related animal models, suggesting an altered neuroimmune crosstalk in the onset of intestinal inflammation. We aimed to assess the impact of TLR4 signaling on enteric serotonergic neurotransmission in murine models of dextran sulfate sodium (DSS)- or dinitrobenzene sulfonic acid (DNBS)-induced ileitis.

Methods: Male TLR4^{-/-} mice (8±2 weeks old; N=30/group) were intrarectally treated with 4% DNBS or received 2% DSS in drinking water for 5 days, and then switched to regular drinking water for 3 days. Histological analysis and pro-inflammatory cytokines mRNA levels were assessed in ileal samples. GI transit was evaluated by measuring the distribution of nonabsorbable FITC-dextran throughout the GI tract. Changes in ileal contractility were isometrically recorded following: (i) cumulative addition of 5-HT (0.3–100 µM); (ii) electric field stimulation (EFS, 0–40 Hz), with or without 1 µM ketanserin (5-HT_{2A}R antagonist), or 0.1 µM ondansetron (5-HT₃R antagonist). Myenteric expression of 5-HT_{2A}R and 5-HT₃R was determined by RT-qPCR analysis and immunohistochemistry in longitudinal-muscle-myenteric plexus whole-mount preparations with confocal microscopy.

Results: Both DSS and DNBS treatment significantly decreased ileal IL-6 and TNF-α mRNA levels, together with less severe inflammatory lesions in ileal tissues, and improved GI dysmotility. DSS- or DNBS-induced ileitis significantly decreased 5-HT-mediated contraction (-50% and -39%, respectively; P<0.001). In TLR4^{-/-} SHAM ileal preparations, the incubation with ondansetron or ketanserin caused a significant increase in EFS-mediated neuromuscular response (E_{max} at 40 Hz = +92% and +76%, respectively; P<0.001). The inhibition of the 5-HT_{2A}R or 5-HT₃R did not alter EFS-induced contractile response in DSS- or DNBS-treated mice. Quantitative RT-qPCR and immunofluorescence analysis revealed a significant reduction of 5-HT_{2A}R and 5-HT₃R expression in the myenteric plexus following DSS or DNBS treatment.

Conclusions: Our results demonstrate that TLR4 signaling influences the severity of small intestinal inflammation as well as ENS structural and functional integrity. These data suggest TLR4 and related serotonergic neuronal pathways as potential pharmacological targets to treat ENS-immunity axis anomalies which could underlie IBD onset/progression.

ABSTRACT CODE: IBS19473-86 - POSTER NO. 8

Enteric dysfunctions in experimental multiple sclerosis: alterations of inhibitory nitrergic neurotransmission regulating small intestinal motility in mice

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Objective: Multiple sclerosis (MS) is an autoimmune demyelinating disease that affects the central nervous system (CNS) in young adults, causing progressive myelin loss, axonal damage and neuronal degeneration. In addition to common CNS symptoms, most MS patients show debilitating gastrointestinal symptoms. Recent studies suggest the presence of enteric nerve fiber destruction and glial cells activation before the onset of neurological deficits and CNS lesions. This study aimed to evaluate potential alterations of enteric inhibitory pathways in a murine model of MS induced by cuprizone (CPZ) treatment.

Methods: Male C57/Bl6 mice (3±1-week-old; N=20 mice/group) were fed with standard diet (SHAM) or standard diet supplemented with 0.25% (w/w) CPZ for 4 weeks. Ileal pro-inflammatory markers (IL-6, TNF- α and iNOS) were quantified by RT-qPCR. Changes in ileal contractility were isometrically recorded following 10-Hz electric field-stimulation in non-adrenergic-non-cholinergic (NANC) conditions (1 μ M guanethidine + 1 μ M atropine) with or without 10 μ M 1400W (an inducible nitric oxide synthase (iNOS) inhibitor), or 0.1 μ M N ω -nitro-L-arginine methyl ester (L-NAME; a pan-NOS inhibitor). The immunodistribution of neuronal (HuC/D, nNOS) and glial S100 β markers was determined in whole-mount preparations of the longitudinal muscle-enteric plexus by immunohistochemical analysis with confocal microscopy.

Results: CPZ treatment causes a 0.3-fold reduction in NANC inhibitory response ($P<0.01$). In ileal samples from CPZ-treated mice, NANC-mediated relaxation was partially abolished by L-NAME incubation but not by 1400W, indicating the involvement of nNOS-derived NO in small intestinal inhibitory response. No changes in the expression of IL-6, TNF- α and iNOS mRNA levels were found in CPZ ileal tissues, as confirmed by RT-qPCR analysis. CPZ-induced demyelination caused a significant reduction in the total number of HuC/D+ neurons (-7.2%; $P<0.001$), associated with a marked reduction in nNOS+ neurons (-38%; $P<0.001$) and a significant increase in S100 β immunoreactivity (+17%; $P<0.001$) compared with SHAM animals, highlighting the presence of enteric neurodegeneration and reactive gliosis.

Conclusions: Our findings show that CPZ-induced demyelination alters small intestine contractility, compromising enteric inhibitory neuromuscular tone. Understanding the mechanisms underlying these morpho-functional alterations affecting enteric neuro-glial plasticity could be useful for identifying new therapeutic targets for ameliorating gastrointestinal dysfunction in MS patients.

ABSTRACT CODE: IBS19446-86 - POSTER NO. 9

Exploring dynamic triggers of abdominal pain in irritable bowel syndrome using the Experience Sampling Method - preliminary results from the multicenter DISCOVERIE study

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Objective: Real-time symptom assessment provides a detailed understanding of the dynamic interplay between gastrointestinal symptoms in irritable bowel syndrome (IBS) and potential triggers, including affect and environmental factors. This study evaluates the association between abdominal pain and potential triggers over time in IBS patients with and without comorbidities, using the Experience Sampling Method (ESM) as a real-time, ecologically valid measurement method.

Methods: In this prospective, observational multicenter study, as part of the DISCOVERIE project, we included 215 Rome IV IBS patients (80% female; mean age 42.1) from six European countries, categorized into 103 IBS-alone, 67 IBS-mental (anxiety/depression), 16 IBS-somatic (fibromyalgia/chronic fatigue syndrome), and 29 IBS-multicomorbid patient subgroups. Participants scored abdominal pain and affect using an 11-point NRS and environmental factors using ESM at up to ten random moments each day over seven consecutive days. Linear mixed-effects models analyzed the associations between abdominal pain and these triggers in each subgroup, both concurrently and predictively (trigger scores lagged by one time point, maximum of 90-minutes).

Results: ESM assessment completion rate was 63%. Regarding affect triggers, abdominal pain was significantly correlated with concurrent positive and negative affect in all IBS groups ($p < 0.02$), while significant lagged associations were only found within IBS-mental for positive affect ($p = 0.02$) and within IBS-alone and IBS-multicomorbid for negative affect ($p < 0.001$) (Figure 1.). Regarding environmental triggers, abdominal pain was significantly associated with concurrent 'feeling comfortable in situation' within IBS-alone, IBS-mental and IBS-multicomorbid ($p < 0.001$), concurrent 'feeling of pleasantness of company' ($p = 0.01$) and being alone (versus with somebody, $p = 0.01$) within IBS-alone, and eating since the last ESM-assessment within IBS-alone ($p = 0.04$) and IBS-multicomorbid ($p = 0.002$) (Figure 1.). No significant lagged associations or correlations with location, activity, alcohol and nicotine use were found.

Conclusions: Our results demonstrate that in IBS patients, real-time abdominal pain is significantly associated with environmental and affect triggers, with both positive and negative affect correlating with abdominal pain irrespective of mental comorbidities. Moreover, fewer triggers predict abdominal pain over time, underscoring the importance of in-the-moment assessments.

This study highlights the value of ESM in accurately identifying symptom triggers, thereby enhancing personalized healthcare in IBS.

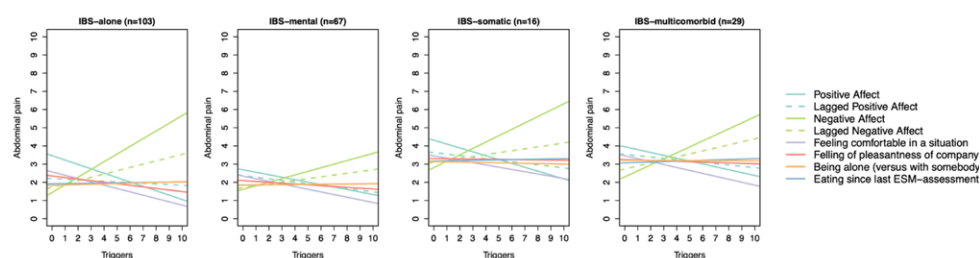


Figure 1. Significant correlations between abdominal pain and triggers (affect and environmental factors) in IBS patients with and without comorbidities, assessed concurrently and predictively using the Experience Sampling Method (ESM). Abdominal pain, affect, feeling comfortable in a situation, and feeling of pleasantness of company were scored using an 11-point NRS. For binary variables (being alone (versus somebody) and having eaten (versus not having eaten) since last ESM-assessment), a score of 0 on the x-axis represents being alone and not having eaten, while a score of 10 represents being with somebody and having eaten.

ABSTRACT CODE: IBS19420-78 - POSTER NO. 10

Ultrasound Markers of Irritable Bowel Syndrome for Monitoring Treatment Outcomes in Central Sensitization Syndromes

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Introduction: Irritable Bowel Syndrome (IBS) is a complex gastrointestinal disorder, often associated with central sensitization syndromes (CSS), characterized by heightened sensitivity to pain. The Gut-Brain Axis (GBA) is implicated in various CSS disorders, including IBS, highlighting the intricate interplay between gut function and central nervous system activity.

Objective: This study aimed to explore the utility of ultrasound (US) imaging in identifying markers of IBS and CSS, stratifying patients based on their symptomatology, and monitoring treatment outcomes.

Methods: A cohort of ten patients meeting the Rome criteria for IBS and exhibiting symptoms of central sensitization were enrolled, alongside ten controls without gastrointestinal or central nervous system symptoms. Pre- and post-intervention multisite multiparameter US assessments were conducted during exacerbation and remission periods. Interventions included a combination of probiotic supplementation[1] and myofascial treatment targeting posture abnormalities via dry needling (DN-US)[2].

Results: Ultrasound examination revealed heterogeneous peristalsis and normal to increased colon thickness in IBS patients. During exacerbation periods, mesenteric artery velocities exceeded 180 cm/sec, and kidney blood flow resistance index (IR) surpassed 0.7, indicating vascular alterations associated with CSS. However, these parameters normalized during remission following intervention. Post-intervention, ophthalmic artery Doppler parameters exhibited enhanced blood flow and reduced vascular resistance, indicative of improved microvascular function. Additionally, alterations in spinal fluid flow patterns were observed post-DN-US treatment, correlating with changes in gut IBS symptoms. Posture abnormalities, including hiatal hernia and pelvic prolapse, were detected using US imaging. Microbiota analysis revealed improvements following probiotic supplementation.

Conclusion: Ultrasound imaging emerges as a valuable tool for assessing multiple functional parameters associated with IBS and CSS. It enables comprehensive evaluation of gut and central sensitization symptoms, facilitating stratification of patients and personalized treatment approaches.

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ABSTRACT CODE: IBS19436-85 – POSTER NO. 11

Role of dietary habits on symptom control and gut microbiota composition in patients with irritable bowel syndrome with constipation

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Objects: The aim of the present pilot study was to observe the interaction between Mediterranean diet (MD), gastrointestinal (GI) symptoms and gut microbiota changes in prevalent constipation IBS (IBS -C) patients.

Methods: 17 IBS - C subjects underwent to a targeted nutritional protocol for 4 weeks, filling a food diary and an IBS symptoms questionnaire 2 weeks before and at the end of the nutritional intervention. Moreover, a fecal sample was collected 2 weeks before and at the end of the nutritional protocol performing the microbiota analysis by 16S rRNA targeted metagenomics. The control group, composed by 17 healthy subjects, received a food diary and a symptoms questionnaire to exclude gastrointestinal disorders. The nutritional protocol was elaborated respecting the macronutrient percentage and the quantity of fiber indicated by LARN 2014 guidelines.

Results: At T1, FAST questionnaire showed a significant reduction in pre-evacuation ($p < 0.0016$) and total abdominal pain ($p < 0.0012$). T1 food diaries of IBS patients, compared with those of controls, showed a decrease in protein ($p = 0.0310$) and an increase in carbohydrates ($p = 0.0126$) and dietary fiber ($p = 0.0001$) intake. Regarding microbiota, a normalization of Firmicutes/Bacteroidetes ratio was observed in IBS patients, while at the family level, Ruminococcaceae, Lachnospiraceae, Clostridiales, Prevotellaceae decreased and Bacteroidaceae increased compared to the control group. After microbiota composition analysis, IBS patients were divided into OUT-LARN and IN-LARN for macronutrients according to diet adherence. The Firmicutes/Bacteroidetes ratio was higher in the OUT-LARN group than in the IN-LARN group.

Conclusions: Results are promising and demonstrate the importance of an appropriate dietary pattern in managing IBS symptoms. Further investigations and a broadening of the sample are necessary to confirm these data.

ABSTRACT CODE: IBS19443-83 - POSTER NO. 12

Evening chronotype correlates with the severity of abdominal pain and impacts on sleep quality in patients with irritable bowel syndrome

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Introduction: Symptoms of irritable bowel syndrome (IBS), like other disorders of gut-brain interaction, negatively affect patients' quality of life and are associated with sleep disturbances. Chronotype is the phenotype of behaviors controlled by the unique circadian rhythm possessed by individuals and affects the sleep-wake cycle of a person, by finely regulated neuro-hormonal pathways. Circadian rhythms regulate multiple aspects of gastrointestinal physiology, but whether chronotypes are associated with IBS and their impact on quality of life and sleep disturbance is not known.

Aims & Methods: The subjects were 211 consecutive patients referring to the outpatients clinic for abdominal symptoms (137 female, age 31±16 years). All subjects had a clinical and instrumental diagnosis of IBS, according to Rome IV Criteria. The IBS-SSS questionnaire exploring IBS symptoms was administered to all participants in order to assess the type, the severity and the impact on quality of life of specific symptoms. All subjects score the bowel habit by the Bristol stool form chart. Participants' chronotype was assessed by the standardized Morningness–Eveningness Questionnaire (MEQ). The MEQ consists of 19 multiple-choice questions regarding sleep habits and daily performance, such as when feeling most productive in physical or mental activities, when feeling most tired, and when feeling most energetic. Sleep quality was evaluated by the Pittsburgh Sleep Quality Index (PSQI). Patients were classified into morning, intermediate or evening chronotypes and IBS symptoms analyzed, respectively.

Results: Ninety-five and 24 subjects were respectively classified as morning and evening chronotypes, while 92 were considered as intermediate and excluded from the analysis. Patients with evening chronotype had significantly higher severity score for abdominal pain (29±3 vs. 50±8 mm, p<0.01). No significant difference were observed for the remaining subtypes scored, nor Bristol stool scale differed significantly. More interestingly, in these subjects a poorer sleep quality was observed, than IBS patients with a morning chronotype (4±1 vs. 7±3, p<0.05).

Conclusion: We showed that subjects with evening chronotype had an increased severity of abdominal pain among IBS symptoms, and this may impair quality of life by sleep disturbances. Our findings suggest the involvement of disrupted circadian rhythms in the IBS pathophysiology and pave the way to alternative and personalized therapeutic approaches.

ABSTRACT CODE: IBS19410-77 - POSTER NO. 13

Discrepancies in stool consistency assessment among irritable bowel syndrome patients: A comparative analysis of self-reported Bristol stool chart and physician evaluation

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Objective: The Bristol Stool Chart (BSC) is a widely used tool for assessing stool consistency in patients with irritable bowel syndrome (IBS). We aimed to evaluate the agreement between a self-reported stool consistency versus physician assessment using the BSC.

Methods: We conducted an ancillary post-hoc analysis of IBS-D/M patients stool samples. The patients were instructed to categorize their stool consistency using the Bristol stool form scale. Then an experienced gastroenterologist wrote down its own assessment using the same stool consistency scale. A paired T Test was conducted to establish whether the self-reported BSC is significantly different compared to the physician estimation

Results: Out of 68 who were enrolled, 64 had an available BSC score. 45/64 (70.3%) patients classified their stool consistency as type 6 or type 7, followed by type 5 (15 [23.4%]) and type 4 (4[6.25%]), on the BSC. Of the 45 patients classified their stool as type 6/7 on the BSC, only five patients fell into the type 6/7 classification of the BSC by physician-assessment. Of the 31 patients stool samples who were classified as type 1-3 by physician-assessment, no one was classified the same by patient self-reporting BSC.

Conclusion: Results revealed significant discrepancies between patient self-reports and physician BSC evaluation. While self-reporting tools empower patients to participate actively in their healthcare, discrepancies between patient-reported and physician-assessed stool consistency may impact diagnosis and treatment decisions. This study underscores the importance of considering multiple assessment methods for accurate evaluation and diagnosis of IBS patients.

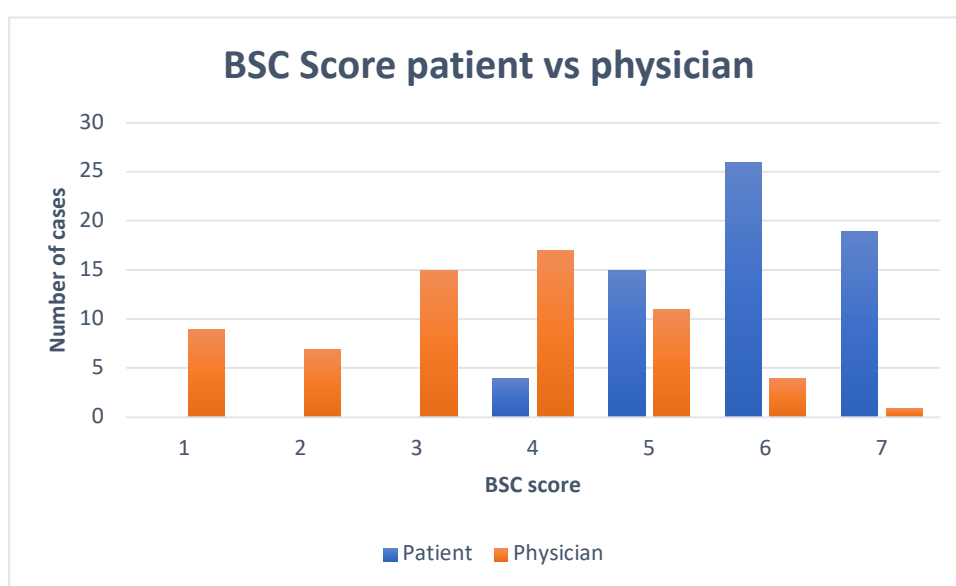


Figure 1: Diagram showing BSC distribution for patients' and physicians' scores.

ABSTRACT CODE: IBS19411-78 - POSTER NO. 14

Immune-based Personalized Elimination Diet for the Treatment of Irritable Bowel Syndrome: A double-blind Randomized Sham-controlled Study

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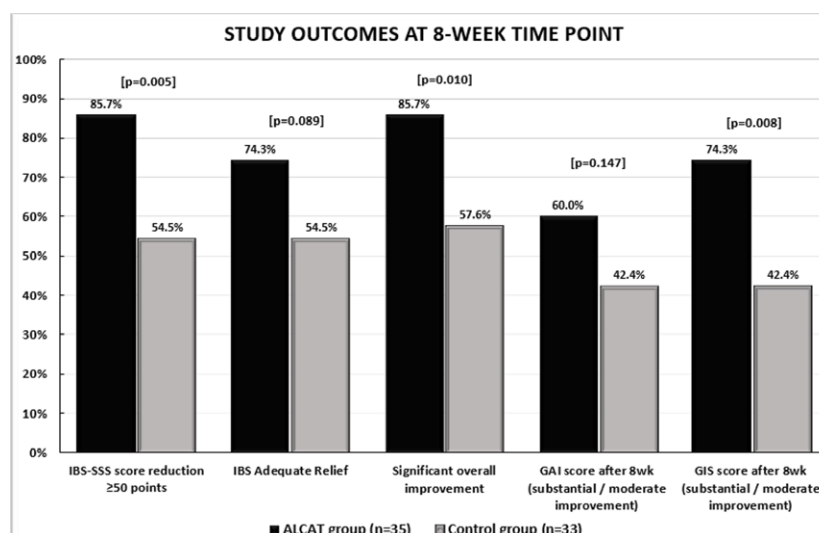
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Objective: Dietary intervention is a common treatment among patients with irritable bowel syndrome (IBS). However, insufficient patient adherence, and essential need for ingredient restrictions limiting its use in this population. Immune assay guided diet may provide an individualized intervention, which may increase its effectiveness compared with non-personalized dietary strategies. We aimed to test the effectiveness of an individualized dietary intervention, based on Leukocyte activation to dietary components (Alcat, Germany), to improve patient compliance to diet modifications.

Methods: A randomized, double-blind, two-arm trial, comparing the efficacy of Alcat-diet versus a "Sham" balanced diet for eight-week treatment of IBS. The primary outcome was defined as a reduction of ≥ 50 points on the IBS-severity scoring system (IBS-SSS). Secondary outcomes included the raw scores of IBS-SSS, Irritable Bowel Syndrome Quality of Life Questionnaire (IBS-QoL) and the Visual Analogue Scale for Irritable Bowel Syndrome (VAS-IBS). IBS-Adequate Response rate and the rates of moderate / substantial improvement on the IBS Global assessment of improvement (IBS-GAI) and the IBS Global Improvement Scale (IBS-GIS) were documented.

Results: 68 patients with IBS-D (44) and IBS-M (24) were enrolled. At baseline, patients in the Alcat-group had a higher median IBS-SSS score compared with the controls (390 [305-435] vs. 330 [240-390], respectively, $p=0.013$). At week 8 of dietary intervention, 30/35 (85.7%) patients in the Alcat-group met the primary outcome, compared with 18/33 (54.5%) of the controls ($p=0.005$). After 8 weeks, there were higher rates of patients in the Alcat-group who reported a symptomatic improvement (i.e., positive response: 85.7% vs. 57.6%, $p=0.010$ and GIS: 74.3% vs. 42.4%, $p=0.008$, Δ VAS-IBS abdominal pain score: 49.7 ± 29.8 vs. 31.6 ± 28.8 , $p=0.020$) compared with the controls. Alcat-diet was more beneficial for patients who were naïve to dietary-intervention (Δ IBS-SSS ≥ 50 rate: 100% vs. 57%, respectively, $p=0.010$), than patients who had previously tried any dietary-intervention (Δ IBS-SSS ≥ 50 rate: 77% vs. 50%, respectively, $p=0.148$) compared with the Sham-diet. No serious adverse events were reported during follow-up.

Conclusion: Immune-based personalized diet was more efficient than Sham-diet for reducing symptoms in IBS patients, and may serve as a safe treatment option in this population.



ABSTRACT CODE: IBS19421-79 - POSTER NO. 15

Fecal consistency as a marker of good response in the treatment of functional bowel disorders and the role of soluble fibers

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Introduction: Intestinal functional disorders are among the most frequent gastrointestinal disorders. Soluble dietary fibers are included on some constipation and fecal incontinence guidelines. A simple way to assess normal intestinal transit is through fecal consistency, commonly demonstrated by the Bristol Stool Scale (BSS). Individuals with normal stools (BSS 3 and 4) tend to have a lower incidence of gastrointestinal symptoms.

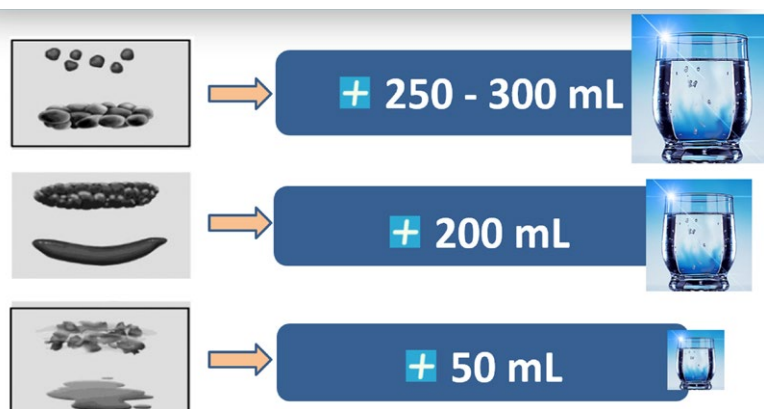
Objective: To evaluate the clinical response to the use of partially hydrolyzed guar gum soluble fibers and inulin, according to fecal consistency, as the first approach in the treatment of intestinal functional disorders.

Methods: Prospective study of 648 patients with functional bowel disorders taking one measuring spoon (5g) of partially hydrolyzed guar gum (60%) and inulin (40%) added to water two times a day for 30 days. If BSS was 1 to 2, patients were told to mix the measuring spoon to 250 - 300 mL of water. If BSS was 5 to 7, to 50 - 100 mL, and if BSS was 3 to 4, to 200 mL. Mean BSS, global improvement percentage, complication rate, Constipation Scoring System (CSS) and Cleveland Clinic Incontinence Score (CCIS) were applied during the first appointment and during the 30-day follow-up appointment.

Results: Of the 648 patients, 61.9% were female, with a mean age of 48.1 years. All patients informed no difficulty in complying with the soluble fiber protocol.

Initial mean CSS was 12,0 (+/-4,8) and CCIS was 2 (+/-1). Mean BSS of constipation patients was 2 (+/- 1) of functional diarrhea and fecal incontinence was 5 (+/-1) and of irritable bowel syndrome was 5 (+/-1), respectively. On the 30-day follow-up appointment, 71.7% of the patients had BSS types 3 and 4, associated with 63.1% (+/- 18.4) of significant overall improvement, while in the patients who presented the other types of fecal consistency (28.3%), the significant overall improvement was only 21.8% (+/-14.3). Mean CSS was 6,7 (+/-3,9) and CCIS was 1 (+/-1), $p < 0,01$.

Conclusion: Achieving normal fecal consistency is associated with significant overall improvement. Oral soluble fibers use according to fecal consistency are a valid tool in treating bowel movement disorders.



ABSTRACT CODE: IBS19423-81 - POSTER NO. 16

Oral soluble fibers as a first approach to low anterior resection syndrome treatment

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Introduction: Low anterior resection syndrome has a significant impact on quality of life. Treatment is still challenging, and many protocols were developed so far.

Soluble fibers are included on some constipation and fecal incontinence guidelines, respectively, according to their regulatory action on intestinal motility and on microbiome. Until the present day, little is known about their effect on LARS patients.

Methods: Ten consecutive adult patients were enrolled during their 30th to the 60th post-operative day (irrespective to anastomosis height and to extension of bowel resection).

Patients were asked to take one measuring spoon (5g) of a mixture composed of partially hydrolyzed guar gum (60%) and inulin (40%) added to water two times a day for a 30-day period. According to the Bristol Stool Scale (BSS), if BSS was 1 to 2, patients were told to mix the measuring spoon to 250 - 300 mL of water, tea or juice. If BSS was 5 to 7, to 50 - 100 mL, and finally, if BSS was 3 to 4, to 200 mL.

Mean BSS, global improvement percentage, defecatory frequency, Constipation Scoring System (CSS) and Cleveland Clinic Incontinence Score (CCIS) - both validated to Portuguese spoken in Brazil - were applied by the author to the patients during the first appointment and during the 30-day follow-up appointment.

All patients accepted to participate by signing the informed consent form, in compliance to the respective Ethical Committee authorization.

Results: Sixty percent were male and average age was 62 years (+- 7 years). All patients informed no difficulty in complying with the soluble fiber protocol.

Initial mean defecatory frequency was 12 (+-3). Mean CSS was 8 (+-5) and CCIS was 17 (+-5). Mean BSS was 6 (+- 2).

By the time of the 30-day follow-up appointment, mean defecatory frequency was 7 (+-2). Mean CSS was 4 (+-3), CCIS was 5 (+-3), and mean BSS was 4 (+-1), $p < 0,01$. Global improvement percentage was 67% (+- 20%).

Conclusion: Oral soluble fibers use according to fecal consistency is a valid tool in treating low anterior resection syndrome patients.

ABSTRACT CODE: IBS19422-80 - POSTER NO. 17

Refractory functional diarrhea – introducing a new modality: the enterosorbents

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Introduction: Refractory functional diarrhea has a significant impact on quality of life, so that some patients prefer a permanent stoma. Main symptoms are diarrhea, fecal incontinence, increased defecation frequency, disturbing fecal urgency and perception of incomplete evacuation. Treatment is still challenging. Enterosorbents are oral intestinal adsorbents, based on organic mineral with adsorption capacity towards some toxic and harmful substances in the gut, e.g., endotoxins and enterotoxins, physically binding them to its surface, reducing stool frequency and improving its consistency. Until the present day, little is known about their effect on refractory diarrhea.

Methods: Fifteen consecutive adult patients were referred to treatment with the enterosorbent methylsilicic acid due to poor response to optimal clinical protocol.

Patients were asked to take one measuring spoon (5g) of 70% methylsilicic acid hydrogel added to 50 mL of water two times a day for a 30-day period.

Mean BSS, global improvement percentage, defecatory frequency, Constipation Scoring System (CSS) and Cleveland Clinic Incontinence Score (CCIS) were applied by the author to the patients during the first appointment and during the 30-day follow-up appointment.

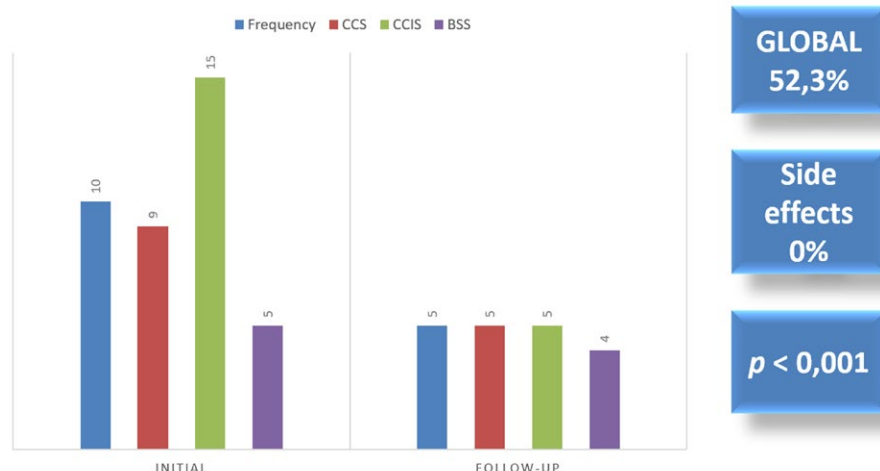
All patients accepted to participate by signing the informed consent form, in compliance to the respective Ethical Committee authorization.

Results: Nine patients were female and average age was 32 years (+/- 7 years). All patients informed no difficulty in complying with the enterosorbent protocol.

Initial mean defecatory frequency was 10 (+/-3). Mean CSS was 9 (+/-5) and CCIS was 15 (+/-5). Mean BSS was 5 (+/- 2).

By the time of the 30-day follow-up appointment, mean defecatory frequency was 5 (+/-2). Mean CSS was 5 (+/-3), CCIS was 5 (+/-3), and mean BSS was 4 (+/-1), $p < 0,01$. Global improvement percentage was 52,3% (+/- 10,2) with no side effects.

Conclusion: The enterosorbent methylsilicic acid hydrogel is a safe and valid tool in treating refractory functional diarrhea patients and may be suitable as a new therapeutic option.



ABSTRACT CODE: IBS19431-80 - POSTER NO. 18

Challenges in Implementing Fecal Microbiota Transplantation and Building a Stool Bank: the Donor Screening Process

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Introduction: Fecal microbiota transplantation (FMT) is an acknowledged treatment option for recurrent *C.difficile* infection and is also extensively studied for the management of IBS. However, implementing FMT and stool banking is challenging, due to extensive resources required for proper donor screening, in order to ensure a safe procedure. Our aim was to identify barriers in donation through screening for building the first Romanian stool bank.

Material and methods: We applied an extensive donor screening questionnaire via an electronic platform to potential donors, among third year medical students. The questionnaire was designed following the current international recommendations and the Romanian guideline for implementing FMT. The eligible student after the questionnaire screening further underwent extensive biological screening according to current guideline recommendations.

Results: Among the 140 invited to participate in the screening process, only 64 volunteers were willing to participate and completed the screening questionnaire. 8 screened volunteers successfully passed the first screening stage, based on the results of the questionnaire. Several potential donors were temporarily excluded from donation at this stage, due to one or more criteria, such as: recent antibiotic intake, recent invasive procedures and also due to potential COVID-19 related. 16 volunteers were excluded due to chronic pathology. After extensive biological screening of the initially eligible donors, only 3 volunteers (2,14%) qualified to be eligible FMT donors.

Discussions and conclusions: The high standards imposed through rigorous screening using this questionnaire stage led to a percentage of 12,5% students who qualified for proceeding to the biological screening and a final 2,14% eligible for donation after biological screening. Screening donors for FMT is challenging and requires several resources, but is pivotal for maximizing the safety of the final product.

ABSTRACT CODE: IBS19430-79 - POSTER NO. 19

Irritable Bowel Syndrome-Type Symptoms among Patients with Quiescent Inflammatory Bowel Disease

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Introduction: Considering the pivotal role of gut-brain axis in the overlap between inflammatory bowel disease (IBD) and irritable bowel syndrome (IBS), our aim was to investigate the prevalence of IBS-like symptoms among IBD patients in remission.

Methods: Patients above the age of 18 years diagnosed with IBD according to the Copenhagen Diagnostic Criteria for either ulcerative colitis (UC) or Crohn's disease (CD), who were evaluated between September 2023 and February 2024 were recruited from the Gastroenterology Department of Sf Spiridon County Clinical Emergency Hospital, Iași, Romania. Inclusion criteria referred to the presence of quiescent IBD. Quiescence was defined as a fecal calprotectin (FCP) value below 150 µg/g and/or a recent (<6 months) colonoscopy with endoscopic remission. Patients with extraintestinal manifestations, depression, pregnant/lactating women and patients with clinico-biological and endoscopic evidence of active disease were excluded. Patients' charts were retrospectively evaluated for clinicodemographic data, recording of patients' symptoms and paraclinical investigations.

Results: 107 IBD patients were included in the study, 59 patients with UC and 48 with CD. The median patient age was 45 (33;57), mostly residing in urban areas (78,5%), 59,81% female patients, 21,49% active smokers. Among the included patients, 34 patients (31,77%) reported intermittent abdominal pain, mostly described as low intensity and characterized as cramping, and only in few cases (3 patients) reported moderate intensity of recurrent abdominal pain, related to defecation. 26 patients (24,29%) reported abdominal pain accompanied by bloating as recurrent bothersome symptom. Diarrhea was reported by 7 patients from the study group, all of them among CD patients. Constipation was reported by 3 patients, among the UC subgroup.

Conclusions: IBS-type symptoms are present among IBD patients with quiescent disease, which could impact the quality of life of IBD patients. In the reported group, recurrent low-intensity abdominal pain was reported in approximately one third of patients, while changes in bowel habit were less frequent, but still reported. The presence of bothersome symptoms among IBD patients in spite of the absence of active inflammation could lead to higher use of healthcare resources, considering the current absence of well-shaped strategies for management.

ABSTRACT CODE: IBS19390-84 - POSTER NO. 20

The contribution of therapeutic education of the patient to the treatment of irritable bowel syndrome (IBS)

E. Gologan¹, A.N. Gologan¹, M.K. Grumeza¹, D.S. Gologan¹, G.E. Gilca Blanariu¹, G. Balan¹

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Objectives: The diagnosis of IBS is based on strict clinical criteria and involves a complex treatment including diet, medication and alternative solutions. The clearest understanding of the disease by the patient is an important element on which therapeutic success depends. Medical therapeutic education of IBS patients may bring therapeutic benefit to them.

Method: A group of 280 outpatients diagnosed with IBS (of any type) were proposed to participate in an educational program regarding IBS in order to assess the contribution of therapeutic education to the effectiveness of a diet. The program consisted of 2 sessions of 2 hours of lectures on IBS and a final test one week after the completion of the courses. The patients did not receive medication but only a low FODMAP diet lasting 3 months (one month stage 1 and two months stage 2). All patients were evaluated at 4-5 weeks after the end of dietary program.

Results: Of the 280 patients included in the study and proposed to participate at educational training, only 112 accepted participation in the educational program (40%) after informed consent; the subgroup of non-course participants was reported as the control group (60%); the main reason of non-participation was the fact that most of these patients considered to have already enough knowledges about IBS. Educational presentations were given as power-point presentations and informative flyers by voluntary medical students under the guidance of teaching staff. The patients were evaluated by physician-doctors. Finally, 89 patients from the control group (53%) and 99 from the study group (88.4%) returned for the final evaluation. The final questionnaire included mainly: reduction of pain, reduction of intestinal transit disturbances, reduction of bloating and increase of quality of life. In the control group, good results were obtained in 67 patients (75%) and in the study group in 88 patients (88.9%), which confirms that patient education is an important element in understanding the disease and its treatment.

Conclusion: Even if it is time-consuming and difficult to apply in a hurried world, therapeutic education of patients with IBS can bring more efficiency to the treatment of the disease.

ABSTRACT CODE: IBS19456-87 - POSTER NO. 21

Probiotic intervention improves quality of sleep

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Objective: Poor quality of sleep is a common symptom in patients suffering from irritable bowel syndrome with a potential link to the gut microbiome composition. First pilot trials have indicated beneficial effects of probiotics on quality of sleep; therefore, we conducted a randomized, double-blind, placebo-controlled trial testing the effects of a probiotic intervention on quality of sleep, quality of life and intestinal microbiome.

Methods: In total, 130 volunteers with impaired quality of sleep (PSQI>5) were included in the study. They were randomized in a 1:1 ratio to a 28-day intervention with either a multispecies probiotic (Omnibiotic-Stress Repair) or a placebo. Participants completed validated questionnaires to estimate quality of sleep (PSQI), quality of life (SF12, GIQLI) and perceived stress (PSQ20) before, during and after the intervention. Furthermore, stool samples for 16S rRNA gene sequencing were collected before and after the intervention. Ninety-four participants finished the study and could be included in the analysis.

Results: The 50 participants (88.6% female, 41.2±10.6 years old) analysed in the probiotic group and 44 participants (88.0% female, 40.1±10.7 years old) in the placebo group were well comparable at baseline, including the initial PSQI-score (10.1±2.7 vs. 10.5±2.6). After two weeks of intervention, both groups showed a comparable improvement in their PSQI-scores. After four weeks of intervention, the improvement of the PSQI score was significantly more pronounced in the probiotic group compared to the placebo group (6.8±2.9 vs. 7.7±3.1; p=0.036), mainly due to improved sleep efficiency and latency. The intervention did not influence quality of life or perceived stress. Ingested bacteria were partially recovered in the microbiome, causing a slight shift in beta diversity in the probiotic group, while alpha diversity and the overall composition of the microbiome remained unaffected.

Conclusion: In conclusion, the intervention with a multispecies probiotic was able to improve quality of sleep of participants with poor quality of sleep beyond an observable placebo-effect. Participants reported falling asleep more quickly and spending less time awake in bed. This well-powered RCT confirms that the probiotic modulation of the intestinal microbiome can be effective in alleviating sleep disturbances.

ABSTRACT CODE: IBS19503-80 - POSTER NO. 22

Idiopathic bile acid diarrhoea impairs the permeability of the small and large intestine, which is associated with clinical manifestations**A.M. Gonzalez-Castro¹, C. Munoz-Puig², L. Martinez², E. Exposito², A. Rodriguez³, S. Mendez³, C. Alonso-Cotoner⁴, J. Santos⁴, M. Vicario⁵, B. Lobo⁴**

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Objective: Idiopathic bile acid diarrhoea (BAD) often overlaps with diarrhoea-predominant irritable bowel syndrome (IBS-D). An increased intestinal permeability has been reported in patients with IBS-D, whereas in those patients that BAD is associated remains unclear. Patients with BAD usually exhibit higher body mass index, there are no previous studies which evaluate dietary habits, intestinal permeability and clinical manifestations. Our aim is to investigate in IBS patients with and without BAD associated the intestinal permeability (small and large intestine), dietary intake, and their relationship with clinical manifestations.

Methods: Demographic and clinical information were obtained from healthy volunteers (HV; n=20) and IBS-D patients meeting Rome IV criteria (n=46), the presence of BAD in IBS-D patients was assessed by SeHCAT test and divided into two subsets: IBS-D-SeHCAT+(n=25) and IBS-D-SeHCAT-(n=21). In all participants dietary intake was assessed using 24-h dietary recall and validated questionnaires were used to assess IBS symptom severity score (IBS-SSS), stool consistency (BSFS), chronic stress (Holmes), visceral sensitivity index (VSI). Intestinal permeability was assessed in vivo with multi-sugar lactulose-mannitol-sucralose test by GC-MS. In urine collected samples was analysed the excreted lactulose/mannitol (L/M) ratio (2h) and the percentage of sucralose (2–24h) to assess small and large intestinal permeability, respectively.

Results: IBS-D-SeHCAT+ group exhibited a higher BMI compared to the other groups (p=0.0025), without a higher intake of calories, carbohydrates, lipids or protein. Moreover, only SeHCAT+ group showed a significantly increased L/M ratio compared with HV [SeHCAT+: 0.019 (0.013-0.025) vs. SeHCAT-: 0.015 (0.006-0.024) vs. HV: 0.010 (0.007-0.013) P=0.002]. Patients from both SeHCAT subsets showed an increased excretion of sucralose compared to HV [SeHCAT+: 1.46 (1.0-1.71); SeHCAT-: 1.43 (1.0-1.89) vs HV: 0.76 (0.69-1.30) P<0.001]. Increase in small and in large intestinal permeability had an association with higher IBS severity symptoms and VSI scores, whereas only small intestinal permeability had also association with greater bowel movements.

Conclusions: The association of BAD in IBS-D impairs both, the small and large intestinal permeability suggesting an impact of the bile acids on intestinal barrier along the gastrointestinal tract with special interest on small intestine. Impaired small intestinal barrier in those IBS patients with BAD is associated with their clinical features, which points to a role of the bile acids in the pathophysiology.

ABSTRACT CODE: IBS19492-87 - POSTER NO. 23

Navigating the Overlapping Symptoms: Insights from the Polish Registry of Microscopic Colitis and its Intersection with Irritable Bowel Syndrome

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Introduction: Microscopic colitis (MC) represents a spectrum of chronic inflammatory bowel diseases (IBD), characterized by chronic watery diarrhea and distinct histological features. There's a lack of data on its epidemiology in Poland. Symptoms of MC closely resemble those of irritable bowel syndrome (IBS), which can delay accurate diagnoses and influence treatment choices, particularly given the high prevalence of disorders of gut-brain interaction (DGBI) in Poland. The potential overlap in symptoms, necessitate a comprehensive clinical evaluation to guide effective management strategies.

Methods: We present retrospective and prospective data findings from the initial cohort of 165 patients enrolled in the microscopic colitis registry, spanning nine academic gastroenterology centers across Poland. The Polish Registry of Microscopic Colitis, initiated by the Polish Society of Gastroenterology, aims to deepen understanding of MC's clinical features, treatment patterns, and outcomes.

Results: Our findings indicate the median age at MC diagnosis was 57 years, with a significant number diagnosed before age 45. A diagnosis delay of about three years was common. MC was more prevalent in women, occurring 3.5 times more often than in men, with lymphocytic colitis being the most frequent subtype. Most patients had normal colonoscopy results, and nearly half were current or former smokers, a group more prone to collagenous colitis. Predominant symptoms included watery diarrhea (86.1%), fecal urgency (66.1%), abdominal pain (58.8%), and bloating (62.4%). Notably, one-third of the patients also met the Rome IV criteria for IBS. The Covid-19 pandemic impacted nearly half of the registry's patients. The most effective treatment reported was Budesonide MMX, with a 92.4% improvement rate.

Conclusions: The findings from the Polish Microscopic Colitis Registry emphasize the need to consider the overlap between MC and IBS, when treating DGBI patients. The multicenter approach of the registry provides a comprehensive view of MC, assisting future research and the creation of standardized treatment approaches for this under-researched condition.

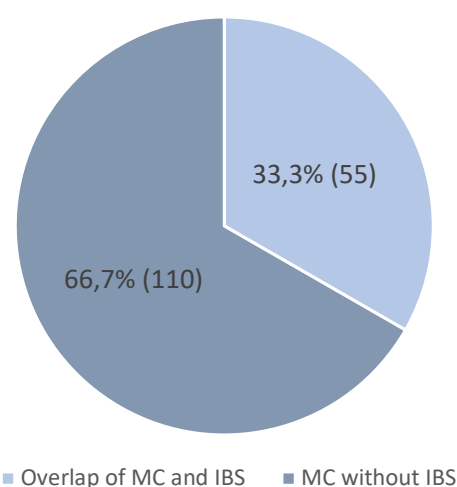


Figure 1. Polish Microscopic Colitis Registry. The overlap of MC and IBS in Poland. (N-number of patients).

ABSTRACT CODE: IBS19437-86 - POSTER NO. 24

Characteristics of Patients with Carbohydrate Intolerance in Irritable Bowel Syndrome (IBS)

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Introduction: Patients with Irritable Bowel Syndrome (IBS) often experience meal-related symptoms, which could be due to carbohydrate intolerances such as fructose and/or lactose. While studies are often interested in exploring carbohydrate malabsorption using breath tests, it is also interesting to explore intolerances, which are defined by the occurrence of gastrointestinal symptoms after a defined load in carbohydrate. Carbohydrate intolerances can be detected using the Adult Carbohydrate Perception Questionnaire (aCPQ). We aimed to assess the prevalence of lactose and fructose intolerance in IBS and to characterize those patients.

Methods: Patients with IBS who underwent fructose (25g) and lactose (25g) breath tests, alongside the aCPQ in our center between May 2022 and December 2023 were included. Carbohydrate intolerance was defined as a 20 mm increase from baseline in any of the five symptoms using Visual Analogue Scale (VAS) scores (abdominal pain, nausea, diarrhea, bloating, and flatulence) in the aCPQ. An increase of ≥ 20 ppm in exhaled H₂ or ≥ 10 ppm of CH₄ (≥ 20 ppm for fructose) from baseline indicated the presence of malabsorption. Patients also completed questionnaires assessing symptom severity (IBS-SSS), somatic symptoms (PHQ-15), quality of life (GIQLI), anxiety, and depression (HAD).

Results: We included 161 IBS patients, among them, 69 were lactose intolerant, 76 were fructose intolerant, and 44 were lactose and fructose intolerant. Lactose intolerant patients were more likely to have lactose malabsorption and fructose intolerance, while fructose intolerant patients were more likely to have fructose malabsorption, lactose intolerance, and a lower quality of life. Both lactose and fructose intolerant patients were more likely to have higher levels of IBS and somatic symptoms. Intolerances were not associated with anxiety and depression. Using binary logistic regressions, fructose intolerance and lactose malabsorption were independently associated with lactose intolerance, while IBS symptom severity, lactose intolerance, and fructose malabsorption were independently associated with fructose intolerance.

Conclusion: IBS patients with lactose and fructose intolerance tend to have higher levels of IBS and somatic symptoms. Fructose intolerance patients experienced a reduced quality of life. Intolerance to one carbohydrate is also associated with malabsorption of this specific carbohydrate and the coexistence of intolerance to the other carbohydrate.

ABSTRACT CODE: IBS19438-87 - POSTER NO. 25

High prevalence of autism spectrum and attention-deficit/hyperactivity disorder traits in patients with moderate–severe irritable bowel syndrome

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Objective: Irritable bowel syndrome (IBS) and autism spectrum disorder (ASD) have been found to share genetic architecture according to a recent genome-wide association study. The population prevalence of ASD is around 1–1.5% and attention-deficit/hyperactivity disorder (ADHD) has a population prevalence of around 5% in children. Gastrointestinal (GI) symptoms are common in children with ASD but knowledge about GI symptoms in adults with ASD and/or ADHD is limited. In this study we aimed at assessing if symptoms of ASD and of ADHD were overrepresented in patients with IBS. Potentially concurrent depression and anxiety was also investigated.

Methods: Patients (age 18–65 years), referred to a tertiary centre with moderate–severe IBS (fulfilled Rome-IV criteria and IBS Symptom Severity Scale (IBS-SSS) ≥ 175 points) were asked to complete screening forms for ADHD (Adult ADHD Self-Report Scale/ASRS), ASD (Ritvo Autism and Asperger Diagnostic Scale-14/RAADS-14) and the Hospital Anxiety and Depression Scale (HADS). Of 120 eligible patients, 68 (15 male, 53 female) (mean IBS-SSS 343.7 (187–487)) responded to the questionnaires. Patients were subdivided into positive and negative screening outcomes for ASD and ADHD and subgroups were compared. Responding and non-responding patients were compared in age, gender distribution and IBS-SSS scores with no significant differences.

Results: Of the 68 patients, 32 (7 male, 25 female) screened positive for ADHD (N=28) or ASD (N=22) with a large overlap between the groups. A prior diagnosis of ASD and/or ADHD had been made in 9/68 patients (6 ADHD, 2 ASD, 1 both) and they all screened positive in one or both forms. HADS depression scores were significantly higher ($p < 0.05$) in the positive ASD group and HADS anxiety scores and depression scores were significantly higher ($p < 0.01$ and < 0.05 respectively) in the positive ADHD group, compared with their respective negative subgroups. No significant difference was found for IBS-SSS.

Conclusion: Our findings suggest an overrepresentation of ASD and ADHD among patients with moderate–severe IBS referred to a tertiary centre. Further studies of the impact of ASD and ADHD on IBS symptoms and interventions are needed.

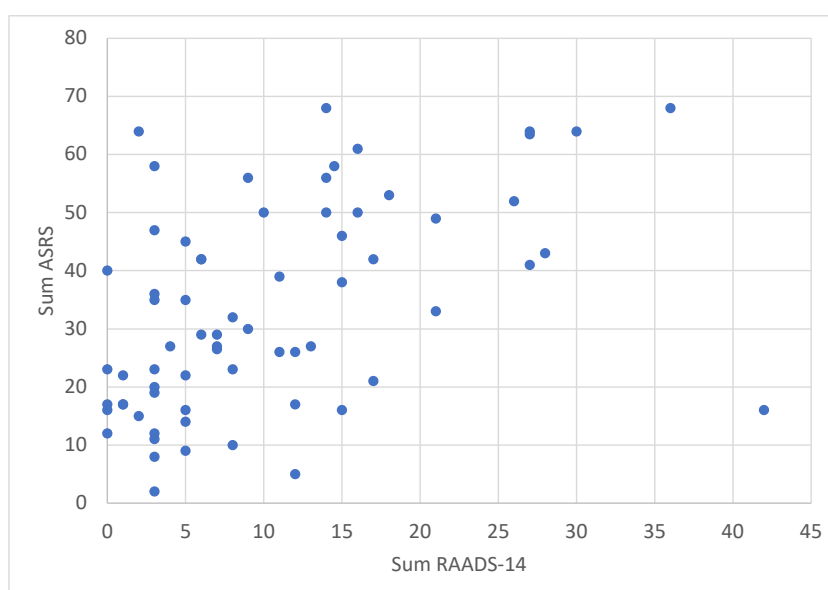


Figure 1: Visualization of the relationship between RAADS-14 and ASRS scores in the studied group of 68 patients with moderate–severe IBS.

ABSTRACT CODE: IBS19432-81 - POSTER NO. 26

Dietary macronutrient and FODMAP intake: role in response to the elimination and reintroduction phase of a low FODMAP diet

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Objective: We previously showed that, after the strict low fermentable oligo- di- monosaccharides and polyols (FODMAP) diet elimination phase, blinded reintroduction reveals a personalized pattern of symptom recurrence by individual FODMAP-triggers (Van den Houte et al. Gastroenterology 2024). However, the role of dietary macronutrient and FODMAP intake at baseline and its changes during the diet in determining treatment success in tertiary care IBS have not been established in detail. We aim to evaluate dietary macronutrient and FODMAP intake at baseline and during low FODMAP diet (LFD) and their relationship to symptom severity and FODMAP-triggers in IBS patients.

Methods: Seven days food diaries were collected from tertiary care IBS patients during regular diet and LFD. Macronutrient and FODMAP analysis was performed using MyFitnessPal™ and the Monash FODMAP calculator. Individual FODMAP-triggers were identified after blinded reintroduction of individual FODMAP powders. Baseline FODMAP intake was compared in patients with and without identified triggers. Patients filled out questionnaires of IBS symptom severity scores (IBS-SSS) 2-weekly. Data are reported as average±SD or median (IQR) and compared using Wilcoxon test and Spearman correlation coefficient.

Results: Data from 70 IBS patients (86% female, 35±1years, BMI 24.6±0.6kg/m²) were analyzed. Results in table 1 show a significant reduction in calories, fat, carbohydrates, sugar, and overall/individual FODMAP intake compared to baseline. On the LFD, significant improvements were observed in IBS-SSS, abdominal pain, bloating, flatulence, and impact on life (table 1). The response rate (≥50 point reduction on IBS-SSS) correlated with the reduction in total FODMAP intake ($r=0.3, p=0.02$). Daily FODMAP intake showed no correlation with individual IBS symptoms at baseline. According to the blinded reintroduction, for a particular FODMAP, baseline individual intake was not significantly higher in patients in whom this FODMAP triggered symptom recurrences compared to patients in whom this was not identified as a trigger.

Conclusions: Our findings confirm a reduced intake of macronutrients and FODMAPs during LFD, compared to baseline. A correlation was found between response rate and the change in total FODMAP intake during LFD, compared to baseline. The amount of specific FODMAP intake at baseline did not determine their ability to trigger symptoms upon blinded reintroduction.

ABSTRACT CODE: IBS19482-86 - POSTER NO. 27

Gastrointestinal symptoms in patients with disorders of gut-brain interaction and fibromyalgia before and after therapy with medical cannabis

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Background and aim: There is a high prevalence of Disorders of Gut-Brain Interaction (DGBI), in particular Irritable bowel syndrome (IBS) and Functional Dyspepsia (FD), in patients with fibromyalgia (FM). Data about treatment with medical cannabis in FM patients are still conflicting and there are no data about its effect on gastrointestinal symptoms (GI) in FM patients. The aim of this study was to evaluate the prevalence and the intensity-frequency score of GI symptoms in FM patients with DGBI before and 6 months after therapy with medical cannabis.

Methods: FM patients were recruited from the FM devoted outpatient clinic of the University Hospital "San Giovanni di Dio e Ruggi d'Aragona" of Salerno. FD and IBS were diagnosed by two experienced gastroenterologists in the field of DGBI according to Rome IV criteria in all FM patients, together with the exclusion of any organic disease. Demographic characteristics, anthropometric data, prevalence of comorbidities, and type of medications were collected at enrollment. All patients started therapy with therapy with medical cannabis: Bedrocan® (titrated at 19–22% of Δ^9 -trans-tetrahydrocannabinol THC and <1% of cannabidiol CBD). A standardized gastrointestinal (GI) symptoms questionnaire was administered before and 6 months after the treatment.

Results: 60 FM (58 women) were enrolled. Mean age was 58 ± 11.4 years; mean BMI was 28.2 ± 5.6 Kg/m². Thirty-one/60 patients (51.7%) fulfilled the Rome IV criteria for the diagnosis of IBS, 36 (60%) for FD, 19 (31.7%) for both FD and IBS. At 6 months evaluation, 32/36 (88.8%) FM patients with FD and 22/31 (71%) with IBS completed the treatment with Bedrocan. At GI symptoms evaluation, FM patients with FD reported a significant lower intensity-frequency scores for epigastric fullness ($p=0.02$); epigastric pain ($p=0.002$); epigastric burning ($p=0.004$). Among FM patients with IBS, there was a significant decrease of the intensity-frequency score for abdominal pain ($p=0.01$); whereas no differences were found for bloating ($p=0.08$).

Conclusions: In FM patients with a concomitant DGBI, the therapy with medical cannabis for 6 months could improve GI symptoms. However, other studies on larger population and longer follow-up are needed.

ABSTRACT CODE: IBS19441-81 - POSTER NO. 28

Real life urgency in relation to bowel movements may not be reflected in barostat thresholds for urge sensation in patients with irritable bowel dysfunction

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Objective: Faecal urgency and fear of faecal incontinence (FI) are significant worries for many patients with irritable bowel syndrome (IBS). Barostat is commonly used to measure rectal sensation thresholds, including urgency. However, there is limited data on the relationship between barostat findings and defecatory symptoms. We aimed to assess the association between barostat thresholds for urge to defecate and urgency symptoms in real life, in patients with IBS, FI and both IBS and FI.

Methods: An electronic barostat was used to measure rectal sensation thresholds in female patients with IBS (n=52), FI (n=25), both IBS and FI (n=30), and female healthy controls (n=29). Subjects were prompted to rate each sensation on a 4-point scale labelled no sensation, first sensation, urge to defecate and discomfort.

A 2-week gastrointestinal diary and the hospital anxiety and depression (HAD) scale were used for symptom reports. Patients reported bowel movement (BM), and whether they had the urge to toilet. The proportion of BM with urgency was calculated for each patient.

Group comparisons of symptoms and barostat thresholds were performed with one-way ANOVA (Bonferroni post-hoc test). Significance level: $p < 0.05$. Pearson's correlation coefficient was utilized to explore associations between urgency and barostat thresholds and HAD.

Results: There were no differences between the groups with regard to threshold for urge to defecate or proportion of BM with urgency ($p > 0.005$). IBS patients with ($p = 0.007$) and without FI ($p = 0.003$) experienced more anxiety than patients with only FI.

There were no significant associations between the proportion of BM with urgency and the barostat threshold for urge to defecate in the groups comprising IBS or FI patients ($p > 0.005$). More urgency in relation to BM was associated with having lower thresholds for first sensation (-0.517 ; $p = 0.006$), urge to defecate (-0.595 ; $p = 0.001$) and discomfort (-0.462 ; $p = 0.015$) in patients with both IBS and FI. There were no significant associations between the proportion of BM with urgency and HAD scores.

All patient groups had lower thresholds for discomfort ($p < 0.001$) compared to the healthy controls. IBS patients also had a lower threshold for urge to defecate ($p = 0.025$).

Conclusion: Determination of rectal sensation thresholds for urgency may not predict occurrence of real life defecation urgency.

ABSTRACT CODE: IBS19464-86 - POSTER NO. 29

Differences in Medical Care Satisfaction of Patients with “Functional” vs “Organic” Esophageal Diseases: Italian Validation of the PPRS-SF Questionnaire and its Application in Clinical Routine Practice.

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Background/Aims: Patient-physician relationship (PPR) plays a center role in modern health care, especially within gastrointestinal medical practice, where patients affected by disorders of gut-brain interaction (DGBI) tend to report a reduced satisfaction towards their medical care. In 2017 Kurlander et al. developed and validated the Patient-Physician Relationship Scale (PPRS), a questionnaire used in patients affected by Irritable Bowel Syndrome (IBS) to assess their degree of medical care-satisfaction. The original PPRS was later simplified by Drossman et al. in 2021 by creating a PPRS-SF (short form), consisting in a 12-item questionnaire. The aims of this study were to validate the PPRS-SF in Italian and to administer it to patients with functional and organic esophageal diseases, to highlight the differences in patient-physician relationship between the two categories.

Methods: The process of validation to Italian language of the PPRS-SF questionnaire was carried out following a standardized forward-backward procedure and each step was overseen by an independent clinical monitor assigned by the Rome Foundation. The Italian version of the PPRS SF was successfully administered to 51 Eosinophilic Esophagitis (EoE), 55 Achalasia (Ach), 48 Gastroesophageal-Reflux-Disease (GERD) and 45 esophageal DGBI patients (affected by functional dysphagia or functional heartburn).

Results: The degree of patients' satisfaction was significantly lower in esophageal DGBI and GERD patients, compared to those with EoE and Achalasia. Between a minimum score of -36 and a maximum of +36, the mean PPRS-SF “Italian version” score was 30.20 (± 9.78) in EoE, 23.78 (± 19.9) in Ach, 20.46 (± 16.03) in GERD and 17.91 (± 18.41) in esophageal DGBI patients. Moreover, there was a significant difference in PPR between younger patients (under 50 years-old), who reported a score of 27.1 (± 12.29) and older patients (over 50 years-old), reporting a score of 20.16 (± 19.72).

Conclusions: This study validated the Italian version of the PPRS-SF questionnaire and showed that the patients' diagnosis together with other factors such as their age, can affect the quality of the PPR. Patients with DGBI and older patients reported lower scores than the ones with organic diseases and the younger ones, respectively.

ABSTRACT CODE: IBS19447-87 - POSTER NO. 30

An internet-based Acceptance and Commitment Therapy intervention for Disorders of Gut-Brain Interaction: Development of a personalized intervention for adults with DGBI and psychological distress

S.J. Störe ¹, S. Jakobsson ², G. Ringström ³, B. Gürbüz ¹, S. Nybacka ⁴, F. Sampaio ⁵, M. Simrén ³, L. Mccracken ⁶, I. Trindade ¹

(1) EMBRACE Lab, School of Behavioural, Social and Legal Sciences, Örebro - Sweden, (2) Institute of Health and Care Sciences, Gothenburg - Sweden, (3) Sahlgrenska University Hospital, Gothenburg - Sweden, (4) Department of Molecular and Clinical Medicine, Gothenburg - Sweden, (5) Department of Public Health and Caring Sciences, Uppsala - Sweden, (6) Department of Psychology, Uppsala - Sweden

Background and study objective: Disorders of Gut-Brain Interaction (DGBI) encompass a range of common gastrointestinal disorders that often coincide with clinically relevant psychological distress and impaired quality of life. Acceptance and Commitment Therapy (ACT), a psychological intervention recognized as efficacious across various physical and psychological conditions, has emerged as a promising avenue for addressing the association of DGBI with psychological distress. Nonetheless, no randomized trial including this approach has been conducted so far. In this research project, we aim to develop and evaluate a personalized online ACT intervention tailored for DGBI patients. Drawing from established ACT protocols tailored for gastrointestinal disorders, our intervention consists of personalized sessions delivered weekly via a web-based platform. The sessions integrate informative text, audio exercises, and video content centered around core ACT principles. The current study aims to explore how the iACTforDGBI intervention can be designed to meet the needs of people with DGBI and symptoms of anxiety and depression.

Methods: An established ACT protocol for gastrointestinal disorders will be translated from Portuguese to Swedish. Two focus groups consisting of adults with DGBI (n = 8-12 in total), and two focus groups with healthcare professionals (n = 8-12 in total) will be conducted to evaluate the preliminary prototype of the iACTforDGBI intervention. The interviews contain questions on both the content of the intervention, and the functionality and design of the online platform. Data will be analyzed with content analysis.

Results: We expect both positive and negative feedback on the content and form of the intervention, relating to more or less text, visualizations, exercises, and number of questionnaires at each data collection timepoint.

Conclusions: Engaging stakeholders in the intervention development process is essential to ensure its relevance, feasibility, and acceptability. This is especially important for complex, personalized interventions. The focus group interviews will provide insights into which ways the iACTforDGBI intervention should be developed before a pilot study, and later a full-scale randomized controlled trial with an active control condition. Through this project, we aim to support the implementation of integrative, biopsychosocial healthcare in DGBI and to foster the empowerment of people with these conditions.

ABSTRACT CODE: IBS19389-92 - POSTER NO. 31

Effects of Menthacarin® on Intensity of Epigastric Pain and Global Improvement: A Pooled Subgroup Analysis by Age and Gender

M. Storr¹, **P. Funk**², **A. Zimmermann**², **B. Stracke**³, **A. Madisch**⁴

(1) Center of Endoscopy, Starnberg - Germany, (2) Research & Development, Dr. Willmar Schwabe GmbH & Co. KG, Karlsruhe - Germany, (3) Global Medical Affairs, Dr. Schwabe Holding SE & Co. KG, Karlsruhe - Germany, (4) Gastroenterology Center Bethanien, Frankfurt - Germany

Objective: Menthacarin® is the proprietary combination of peppermint oil (90 mg WS® 1340) and caraway oil (50 mg WS® 1520) with specified quality (active substance of Carmenthin® and Gaspan®, manufacturer Dr. Willmar Schwabe GmbH & Co. KG, Karlsruhe, Germany). Recently, the efficacy of Menthacarin® in the treatment of functional gastrointestinal disorders was confirmed by a systematic review with meta-analysis of placebo-controlled randomised clinical trials (RCT) in patients with functional dyspepsia (FD), demonstrating a significant reduction in intensity of epigastric pain and in global improvement according to Clinical Global Impression (CGI) scale, item 2 [1]. An analysis focussing on subgroups by age and gender has not yet been reported.

Methods: Based on the 3 RCT identified and the methods used in the original meta-analysis [1], we performed a pooled subgroup-analysis by age (<50/≥50 years) and gender. Efficacy measures were the change in intensity of epigastric pain from baseline and the global improvement of the patients' condition (CGI item 2) after 4 weeks of treatment with Menthacarin® compared to placebo.

Results: Data of 249 patients (male/female: 86/163; <50/≥50 years: 120/129) derived from the original analysis [1] was analysed. For Menthacarin®, a statistically significant reduction in intensity of epigastric pain was found for both genders (SMD 1.17 [95%CI: 0.36,1.98] for males and 0.56 [0.11,1.02] for females, respectively) and both age groups (SMD 0.72 [0.04,1.41] for patients aged <50 years and 0.79 [0.43,1.15] for patients aged ≥50 years, respectively) compared to placebo. For global improvement, a statistically significant advantage for Menthacarin® could be seen in both age groups (RR 2.51 [1.10,5.71] for patients <50 years and 2.78 [1.82,4.25] for patients ≥50 years, respectively) and in females (RR 2.25 [1.53,3.30]). In males, the point estimate of the risk ratio for global improvement also favoured Menthacarin® (RR 3.94 [0.89,17.53]), although not resulting in a statistically significant advantage, maybe due to the small patient number in this group.

Conclusions: The overall favourable results for Menthacarin® reported recently [1] are reflected in analysis results for intensity of epigastric pain and patient's global improvement according to age and gender.

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Conclusions: The overall favourable results for Menthacarin® reported recently [1] are reflected in analysis results for intensity of epigastric pain and patient's global improvement according to age and gender.

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ABSTRACT CODE: IBS19454-85 - POSTER NO. 32

Shame exacerbates the effect of bowel symptoms on psychological distress and quality of life in individuals with functional bowel disorders

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Objective: The link between stigma and shame (a self-conscious emotion triggered by the perception of being negatively evaluated by others) is overall acknowledged, but few studies focusing on health-related stigma mention shame. In functional bowel disorders (FBD), a highly stigmatized group of gastrointestinal disorders, research on this topic is non-existent. The aim of this study was to analyse shame as a moderator of well-known associations between bowel symptoms and psychosocial outcomes.

Methods: We included two population-based samples: a FBD sample (n=537) and a matched comparative sample without bowel symptoms (n=1881), both of Swedish adults. Participants completed an online survey with validated self-report scales assessing external shame (OAS-2), GI-specific anxiety (VSI), bowel symptom severity (IBS-SSS), general anxiety (PHQ-4), depressive symptoms (PHQ-4), quality of life (EQ-5D-5L), and activity impairment (WPAI:GH). Moderation analyses were conducted using PROCESS to analyze the moderating role of shame in the associations of bowel symptom (IV) severity with GI-specific anxiety, general anxiety, depressive symptoms, quality of life, and activity impairment (DVs).

Results: The FBD sample reported significantly higher levels of shame than the comparative sample (mean 13.17 vs 9.05; $p < .001$; $d = .55$). Shame was a significant moderator in the models with GI-specific anxiety, depressive symptoms, quality of life as outcomes. Results showed that, for the same level of bowel symptom severity, participants with higher levels of shame presented higher severity of GI-specific anxiety and depressive symptoms, and poorer quality of life. For GI-specific anxiety, this moderation effect was not as relevant when bowel symptoms were more severe. Regarding depressive symptoms, it was interesting to note that scores around 250 on the IBS-SSS were associated with scores around 1.5 (non-clinically relevant) on the depression scale when shame levels are low, and with scores around 3.5 (clinically relevant) when shame levels are high.

Conclusions: In FBD, shame appears to be a particularly important emotion which exacerbates the detrimental effects of bowel symptoms on GI-specific anxiety, depressive symptoms, and quality of life. A compassionate doctor-patient relationship and psychological therapies may be helpful for FBD patients experiencing high levels of shame.

ABSTRACT CODE: IBS19490-85 - POSTER NO. 33

Colonoscopy findings in patients with Irritable Bowel Syndrome

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Objective: Irritable bowel syndrome (IBS) is a functional disorder of the gastrointestinal tract characterized by abdominal pain associated with changes in stool form or frequency. This study aims to determine the diagnostic yield of colonoscopy for organic disease in IBS patients, as well as the validity of subjecting patients with IBS to invasive diagnostics.

Methods: This is a cross-sectional study that included 2,310 patients who underwent colonoscopy with biopsy samples being taken, over a period of one year (2017-2018). Patients either had clear indications for colonoscopy, according to guidelines, or IBS. According to dominating change in bowel habits, IBS patients were further classified into IBS with diarrhea (IBS-D), IBS with constipation (IBS-C) and IBS with alternating constipation and diarrhea, mixed type (IBS-M). Pathological colonoscopy findings were considered to be: angiodysplasia of the colon, diverticulosis, microscopic colitis, inflammatory bowel disease (IBD), polyp and colorectal cancer.

Results: Out of 2,310 patients, 431 (18.7%) met Rome IV criteria for IBS (IBS-M - 63 (2.7%), IBS-C - 251 (10.9%), and IBS-D - 117 (5.1%)). Patients were predominantly female (53.7%), average age of 56.8 years, with 68.9% of patients being over 50 years of age. Organic disease was verified in 59.6% of total number of patients, with a higher prevalence in patients with clear indications (65.4%) in relation to IBS (34.6%) (IBS-M 44.4%; IBS-C 31.1%; IBS-D 35.9%). Patients with IBS had the following prevalence of pathological findings: angiodysplasia of the colon 2.1%, diverticulosis 20.2%, microscopic colitis 2.3%, polyp 11.1%, carcinoma 0.5%, IBD 2.6% (Fig.1). Logistic regression analysis indicated that the predictor of pathological colonoscopy finding in IBS is age over 50 years, as well as the IBS type (IBS-M has an 86% higher chance of pathological findings compared to IBS-C).

Conclusions: Our study found IBS patients had a 34.3% organic disease prevalence, with diverticulosis being the most frequent. IBD and microscopic colitis were most frequently detected in IBS-D. Colorectal cancer in IBS patients had a prevalence below 1%. Colonoscopy was most often performed in patients with IBS-C, but research showed that IBS-M has an 86% higher chance of pathological findings.

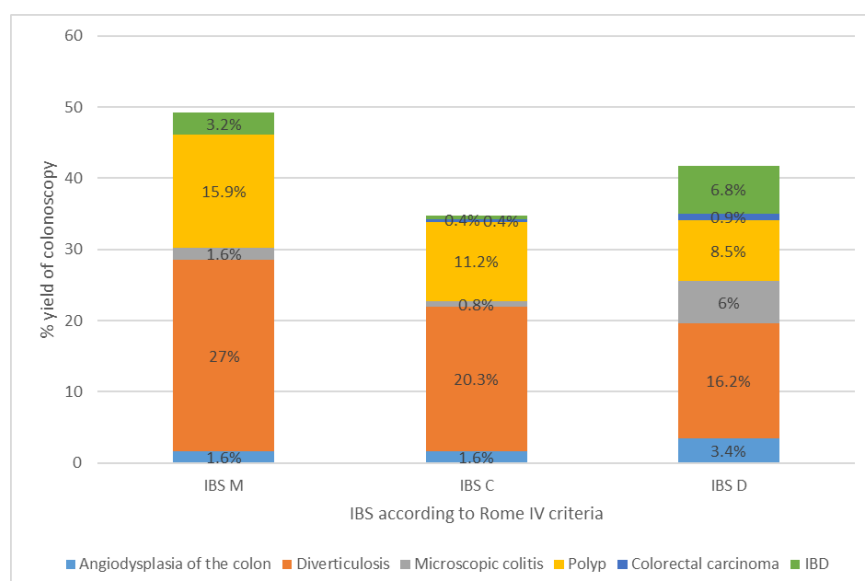


Figure 1

ABSTRACT CODE: IBS19493-88 - POSTER NO. 34

Colonic motor patterns after intracolonic infusion of fructose, fructans, and mannitol in healthy volunteers assessed with high-resolution colonic manometry

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Objective: Although irritable bowel syndrome (IBS) is defined as a motility disorder, there is a lack of studies assessing colonic motility in these patients and linking it to symptoms. A recent FODMAP reintroduction study showed that fructans and mannitol triggered IBS symptoms in the majority of patients, while fructose did not but the mechanism is unclear. Therefore, we set up a study to investigate how these FODMAPs trigger colonic motor patterns in healthy volunteers (HV).

Methods: HV were included in a randomized, double-blind, 3-way crossover study where a 200 mL solution of either fructose, fructans, or mannitol was administered during three study visits, each separated by ≥ 2 weeks of wash-out. Participants followed a low-FODMAP and low-fiber diet for 3 days before each study visit. On the study day, they received a 250mL tap water enema for HRCM catheter placement (36-sensor solid-state) via colonoscopy. After recovery of 1h, colonic pressure waves (PWs) were measured in a fasted state (1h), after a 20-min FODMAP infusion (2h), and after a standardized meal (1h). The number and propagation direction of short PWs (3 sensors), long PWs (≥ 4 sensors), cyclic PWs, and high-amplitude propagating (retrograde) contractions (HA(R)PCs) were analyzed.

Results: A total of 15 study visits from five HV (40%men, 38 ± 8 years, BMI 23.7 ± 1.6 kg/m²) who finished the full protocol were analyzed. Although none of the motor patterns occurred more frequently with one of the FODMAPs in the fasted state, during FODMAP infusion, 1h post-infusion and postprandially, the short anterograde PWs occurred more frequently in the 2h post-infusion period with fructans compared to fructose and mannitol ($p=0.03$). Additionally, long synchronous PWs occurred more frequently 1h post-infusion with fructans compared to the fasted state and there was a trend toward a higher occurrence of long synchronous PWs and cyclic retrograde PWs with mannitol (see table).

Conclusion: At the current number of healthy volunteers finalizing all 3 visits, fructans and to a lesser extent mannitol but not fructose intracolonic infusions are associated with increased occurrence of synchronous and anterograde colonic motor patterns. Triggering of colonic motor patterns may contribute to symptom triggering by these FODMAPs in IBS.

Colonic motor pattern	Fasted	1h post-infusion	2h post-infusion	P-value	
Long Synchronous	4 (1-7.5)	12 (6-15.5)	4 (2-15.5)	0.14	Fructose
Short Synchronous	9 (5.5-25.5)	10 (8.5-24.5)	8 (6.5-26)	0.78	
Long Retrograde	2 (0-6)	4 (1.5-16.5)	3 (2-9)	0.52	
Short Retrograde	27 (9.5-44)	27 (23-68)	28 (21-64.5)	0.69	
Long Anterograde	2 (0-6.5)	3 (1-12.5)	1 (1-16)	0.69	
Short Anterograde	20 (10.5-44.5)	30 (19-41.5)	28 (21.5-54.5)	0.37	
Cyclic Synchronous	0 (0-7)	0 (0-3)	0 (0-3.5)	0.89	
Cyclic Retrograde	0 (0-13)	6 (3-13)	6 (1.5-22)	0.8	
Cyclic Anterograde	3 (0-8.5)	3 (0-4.5)	8 (2.5-16)	0.26	
HAPCs	0 (0-0)	0 (0-0)	0 (0-0)	>0.99	
HARPCs	0 (0-0)	0 (0-0)	0 (0-0)	>0.99	
Long Synchronous	3 (0-8)	8 (5-19.5)*	0.5 (0-3)	0.009	Fructans
Short Synchronous	8 (6-12.5)	19 (9-26.5)	14 (5-19.5)	0.37	
Long Retrograde	1 (0.5-2.5)	1 (0.5-21)	2 (0-20.5)	0.52	
Short Retrograde	29 (16-44)	37 (24.5-104)	33 (17-84.5)	0.39	
Long Anterograde	3 (1-5.5)	6 (3.5-25)	6 (1-17)	0.08	
Short Anterograde	26 (17.5-36.5)	32 (18.5-68.5)	31 (22-66)	0.37	
Cyclic Synchronous	3 (0-4.5)	0 (0-2.5)	0 (0-0)	0.19	
Cyclic Retrograde	0 (0-8)	6 (1.5-20)	3 (0-30.5)	0.33	
Cyclic Anterograde	9 (3-17)	12 (0-19.5)	7 (3-10)	0.98	
HAPCs	0 (0-5)	0 (0-0)	0 (0-0)	>0.99	
HARPCs	0 (0-0)	0 (0-0)	0 (0-0)	>0.99	
Long Synchronous	0 (0-4)	7 (3-15)	3 (1-4)	0.054	Mannitol
Short Synchronous	13 (1.5-21)	20 (4.5-29.5)	6 (5-13)	0.95	
Long Retrograde	1 (0-9)	4 (1.5-21)	2 (0.5-6)	0.27	
Short Retrograde	26 (5.5-81.5)	48 (32.5-100.5)	38 (18-57)	0.37	
Long Anterograde	0 (0-6.5)	4 (3.5-16.5)	3 (2-112.5)	0.09	
Short Anterograde	24 (10-52.5)	46 (30.5-59.5)	24 (7-41)	0.37	
Cyclic Synchronous	0 (0-0)	3 (0-6)	0 (0-0)	0.11	
Cyclic Retrograde	3 (0-27)	6 (1.5-25.5)	0 (0-10.5)	0.06	
Cyclic Anterograde	3 (1.5-8.5)	7 (4.5-21.5)	0 (0-8)	0.17	
HAPCs	0 (0-1.5)	0 (0-0)	0 (0-0.5)	>0.99	
HARPCs	0 (0-0)	0 (0-0.5)	0 (0-0)	>0.99	

Friedman comparison of the colonic motor patterns between fasted state, 1h post-FODMAP infusion, and 2h post-FODMAP infusion for each of the FODMAPs. Results presented as medians with interquartile range. P-values < 0.05 are considered statistically significant. *Statistically significant compared to the fasted state after Dunnett's test for correction for multiple testing. HAPC, high amplitude propagating contraction; HARPC, high amplitude retrograde propagating contraction.

ABSTRACT CODE: IBS19413-80 - POSTER NO. 35

Do patients with constipation-predominant irritable bowel syndrome have altered transit time?

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Introduction: Diagnosis and management of constipation-predominant irritable bowel syndrome (IBS-C) is complex. We suggest conducting a oro-anal transit time study with radiopaque markers (TTC) to differentiate between: constipation with normal colonic transit; slow transit constipation; and outlet obstruction.

AIM: Our objective is to study intestinal transit in patients with IBS-C using radiopaque markers (MR) and lactulose hydrogen breath test (LHBT).

Methods: The oroanal colon transit time (OATT) was measured using radiopaque markers (MR) with rings, employing a standardized technique, where retention of less than 20% was considered normal and retention greater than 20% was considered pathological. The oro-cecal transit time (OCTT) was measured using lactulose hydrogen breath test (LHBT), also with a standardized technique, with the first peak elevation of the curve exceeding 20 ppm after 60 minutes. The severity of constipation was assessed using symptom scores and the Bristol Stool Form Scale. For results, the group with normal OATT and with retention greater than 20% of the rings was evaluated as having slow transit. Statistical analysis was performed using the Shapiro-Wilk test, chi-square test for qualitative variables, and Mann-Whitney test for continuous variables, with $p < 0.05$ considered significant.

Results: Fifty-three women with IBS-C according to Rome IV criteria were included, with an average age of 39 years (range 15-67). Twenty-six patients (50%) exhibited slow transit with MR, while 27 patients (50%) had normal transit. Oro-cecal transit time (OCTT) was significantly higher in patients with slow transit, with 27% of them being methane producers. There were no differences in symptoms or Bristol Stool Scale between groups. Please refer to the attached table for details.

Conclusion: Half of patients with IBS-C exhibit slow transit with MR. Furthermore, this group shows higher oro-cecal transit time (OCTT) and a predominantly methane-producing colonic flora. Therefore, MR and LHBT studies are useful for classifying these patients and potentially guiding therapy more effectively.

	Slow transit N = 26 (%)	Normal transit N = 27 (%)	P value
Flora			
Only Hydrogen or predominantly Hydrogen	19 (73)	27 (100)	0.004
Only methane or predominantly methane	7 (27)	0 (0)	
Symptoms			
Pain	8 (5 – 10)	8 (1 – 10)	0.842
Sensation of obstruction	8 (0 – 10)	8 (0 – 10)	0.927
Urgency	2 (0 – 10)	0 (0 – 10)	0.268
Incomplete evacuation	8 (1 – 10)	8 (0 – 10)	0.906
Bloating	10 (5 – 10)	9 (5 – 10)	0.245
Consistency (Bristol Scale)			
Bristol 3 – 4	7 (29)	4 (15)	0.277
Bristol 1 – 2	19 (73)	23 (85)	
SIBO	18 (69)	17 (63)	0.630
Orocecal Transit Time	110 (70 – 190)	90 (60 – 200)	0.012

Table: Characteristics in breath test among different subgroups.

ABSTRACT CODE: IBS19452-83 - POSTER NO. 36

Bowel symptoms and disordered eating: prevalence and associated factors in the general population

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Objective: We aim to describe the prevalence of possible avoidant-restrictive food intake disorder (ARFID), among the general population and determine factors associated with disordered eating among individuals with bowel symptoms.

Methods: We invited individuals aged 18-70 years from the general Swedish population to participate in an internet-based health survey and included participants who met Rome IV diagnostic symptom frequency thresholds for at least one bowel symptom used to diagnose a functional bowel disorder (n=825), and a sex- and age-matched control group without bowel symptoms (n=1881). Individuals with an organic GI disease or a history of GI surgery (except appendectomy and cholecystectomy) were excluded. The survey included self-report measures for body mass index (BMI), psychological distress (PHQ-4), gastrointestinal (GI) symptom severity (IBS-SSS), GI-specific anxiety (VSI), shame (OAS-2), disordered eating (NIAS total score), and screening for anorexia and bulimia (SCOFF). Possible ARFID was defined as reaching validated cutoff for any NIAS subscale measuring different aspects of ARFID symptoms (≥ 10 NIAS-picky eating, ≥ 9 NIAS-appetite, and ≥ 10 NIAS-fear) in combination with a negative screening for body shape- and weight-related eating disorders (SCOFF). We performed a stepwise multiple regression model with disordered eating as the dependent variable, and predictor variables chosen based on theory and study correlations, using bivariate analysis with $p < .05$ as a requirement for inclusion in the final model.

Results: Possible ARFID was more common among individuals with vs without bowel symptoms (13.1% vs 10.2%; $p < .001$). Female sex, younger age, lower BMI, more severe GI symptoms, GI-specific anxiety, shame, and psychological distress were all correlated with disordered eating. Psychological distress, higher severity of GI symptoms, lower BMI and younger age, were factors independently associated with higher severity of disordered eating in individuals with bowel symptoms (Table 1).

Conclusions: Possible ARFID was reported by more than one out of ten individuals in the general population. Among individuals with bowel symptoms, disordered eating was also associated with higher psychological and GI symptom severity, lower BMI and younger age. Clinicians should assess disordered eating amongst individuals with bowel symptoms, especially in those with higher severity of psychological distress and GI symptoms.

ABSTRACT CODE: IBS19453-84 - POSTER NO. 37

Dietary habits in individuals with bowel symptoms and symptoms compatible with eating disorders: results from a cross-sectional cohort from the Swedish general population

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Objective: Avoidant-restrictive food intake disorder (ARFID), and other eating disorders (ED) are suspected to be common among individuals with various gastrointestinal (GI) disorders. Previous studies in patients with disorders of gut-brain interaction have assessed different dietary habits and food intake compared to the general population. We aimed to investigate dietary habits among individuals with symptoms compatible with ED and bowel symptoms using a cross-sectional cohort from the Swedish general population.

Methods: Participants were individuals from the Swedish general population who met ROME IV diagnostic symptoms frequency thresholds for at least one bowel symptom used to diagnose a functional bowel disorder (FBD), and who did not report GI disorders or GI surgery. The survey (Qualtrics, LCC) included self-report measures of ARFID (NIAS), screening for anorexia and bulimia (SCOFF), dietary habits/food frequency questionnaire. A positive screening for anorexia and bulimia nervosa (SCOFF ≥ 2) was used to identify symptoms compatible with shape/weight motivated ED, and validated cutoffs for NIAS (≥ 10 Picky eating; ≥ 9 Appetite; ≥ 10 Fear) with a negative screening for anorexia and bulimia (SCOFF < 2) was used to identify possible ARFID. The group with negative screening for both ARFID and other ED was named "no disordered eating".

Results: 825 participants with bowel symptoms were recruited (age 34.0 ± 15.0 years (mean $\pm$ SD); 66.2% females). Of these, 65.1% fulfilled the Rome IV criteria for a FBD. Those with possible ARFID and symptoms compatible with shape/weight motivated ED more often followed a special diet compared to the group with no disordered eating (40.7%, 36.4% vs 26.0%, $p = .001$). The number of meals/day differed between groups with a tendency towards fewer meals/day in individuals with possible ARFID (table 1). Reported frequency of food groups intake was similar across disordered and non-disordered eating, with the exception of individuals with symptoms compatible with shape/weight motivated ED reported higher intake of high FODMAP fruits and vegetables compared to those with no disordered eating.

Conclusions: Individuals with bowel symptoms and suspected ED report different dietary habits but similar overall food intake frequency compared to those without disordered eating. Further exploration of nutrient and energy intake in individuals with bowel symptoms and suspected ED is warranted.

ABSTRACT CODE: IBS19484-88 - POSTER NO. 38

Disorders of the gut-brain interactions in patients with celiac disease adhering to gluten free diet: a prospective 10-year study

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Aim: In this prospective study we evaluated the rate of irritable bowel syndrome (IBS), functional dyspepsia (FD), anxiety and depression over a follow-up period of more than 10 years in a population of patients with CD following GFD.

Material and methods: Patients with CD diagnosed between 2004 to 2014 at the University Hospital in Modena, Italy were re-evaluated to assess the presence of DGBI. Rome-IV (pediatric modules if patients were younger than 17 years old), gastrointestinal symptoms rating scale (GSRS) and hospital anxiety and depression scale (HADS) questionnaires were administered along with the evaluation of the last blood examinations. The rates of IBS, FD, anxiety, and depression were then assessed. Univariate and multivariate analyses were performed to investigate the presence of factors associated with IBS and FD.

Results: We contacted 197 patients out of 340 from our original pediatric cohort. Patients who were not strictly adhering to GFD (25 patients) and who did not complete the questionnaires (20 patients) were excluded from the study. The median follow-up time was 154 months (125-180). The rate of IBS was 14.47% (22/152) which increased to 22.3% (21/94) considering only the adult population (Table 1). Patients were then subclassified in IBS-C (5/22, 22.7%), IBS- M (6/22, 27.3%) and IBS-D (10/22, 45.5%). The overall rate of FD was 7.24% (11/152) (Table 2) and up to 11.7% (11/94) in the adult population and none in the pediatric one. We found that postprandial distress syndrome (PDS) was present in 7.89% (12/152) of the population and epigastric pain syndrome (EPS) in 5.26% (8/152). Significantly higher rates of anxiety were found in patients developing IBS and FD (Table 1 and 2). Univariate and multivariate analyses showed that a longer follow-up time was significantly correlated with a higher rate of IBS and that anxiety was correlated with both IBS and FD (Table 1).

Conclusions: Over more than 10 years from the initial diagnosis of CD, we found a higher rate of IBS and FD than the one reported for the general population. In our cohort, DGBI are correlated with higher level of anxiety and longer follow-up time.

Variables	Characteristic of the patients		Univariate analyses		Multivariate analyses	
	No IBS	IBS	Odds Ratio (95% CI)	P-value	Odds Ratio (95%CI)	P- value
	130 (85.53%)	22 (14.47%)				
Age at diagnosis (months)	62 (35-97)	79 (49-116)	1,006 (0.996- 1.017)	0.204		
Follow-up time (months)	151 (123-177)	177 (152-189)	1,139 (1.029 - 1.262)	0.033	1,142 (1,023 - 1,275)	0,018
Gender			0.331 (0.093 - 1.183)	0.089		
Male	41 (32.28%)	3 (13.64%)				
Female	86 (67.72%)	19 (18.10%)				
Depression (HADS)			2,988 (0.832 - 10,720)	0.093		
Depressed	9 (6.92%)	4 (18.18%)				
Not depressed	121 (93.08%)	18 (81.82%)				
Anxiety (HADS)			6,375 (2.431 - 16.717)	< 0,001	6,595 (2,441 - 17,815)	< 0,001
Anxiety	28 (21.54%)	14 (63.64%)				
No anxiety	102 (78.46%)	8 (36.36%)				
BMI percentile	33 (8-74)	44 (10-71)	1 (0.986 - 1.015)	0.965		
Anti-tTG IgA	100 (48-128)	50.2 (17.5-103)	0.996 (0.992 - 1.002)	0.210		
Diarrhea	6 (4.72%)	2 (9.09%)	2,017 (0.38 - 10,7)	0,41		
Constipation	6 (4.72%)	2 (9.09%)	2,017 (0.38 - 10,7)	0,41		
Abdominal pain	40 (31.5%)	8 (36.36%)	1,243 (0,4827-3.2)	0,652		
Bloating	36 (28.35%)	6 (27.27%)	0,948 (0,345 - 2,614)	0,918		
Nausea	15 (11.81%)	3 (13.64%)	1,179 (0,311 - 4,464)	0,809		
Growth stunting	22 (17.32%)	4 (18.18%)	1,06 (0,326 - 3,441)	0,922		
Reduced weight gain	6 (4.72%)	1 (4.55%)	0,96 (0,11 - 8,386)	0,971		
Headache	5 (3.94%)	2 (9.09%)	2,44 (0,443 - 13,445)	0,306		
Familiarity	27 (21.26%)	7 (31.82%)	1,728 (0,640 - 4,664)	0,28		
Variables	Characteristic of the patients		Univariate analyses		Multivariate analyses	
	No FD	FD	Odds Ratio (95% CI)	P-Value	Odds Ratio (95%CI)	P-value2
	141 (92.76%)	11 (7.24%)				
Age at diagnosis (months)	62 (35-97)	84 (49-121)	1.178 (1.024- 1.353)	0.021	1.146 (0.945 - 1.389)	0.166
Follow-up time (months)	152 (123-179)	179 (154-225)	1.019 (1.002 - 1.036)	0.026	1.001 (0.986 - 1.028)	0.5
Gender			0.508 (0.105 - 2.4523)	0.399		
Male	42 (30.43%)	2 (18.18%)				
Female	96 (69.57%)	9 (81.82%)				
Depression (HADS)			2.626 (0.503. - 13.691)	0.252		
Depressed	9 (6.92%)	2 (18.18%)				
Not depressed	130 (92.2%)	9 (81.82%)				
Anxiety (HADS)			5.3 (1.464 - 19.187)	0.011	5.045 (1.322 - 19.248)	0.018
Anxiety	35 (24.82%)	7 (63.64%)				
No anxiety	106 (75.18%)	4 (36.36%)				
BMI percentile	33 (8-67)	44 (21-95)	1013 (0.994 - 1.032)	0.177		
Anti-tTG IgA	100 (33-128)	47 (19-100)	0.99 (0.979 - 1.002)	0.093		
Diarrhea	8 (5.8%)	0				
Constipation	8 (5.8%)	0				
Abdominal pain	42 (30.43%)	6 (54.55%)	2.743 (0.723 - 9.487)	0,652		
Bloating	40 (28.99%)	2 (18.18%)	0.544 (0.113 - 2.631)	0.449		
Nausea	18 (13.04%)	0				
Growth stunting	24 (17.39%)	2 (18.18%)	1,055 (0,214 - 5,198)	0.947		
Familiarity	29 (21.01%)	5 (45.45%)	3.132 (0.892 - 10.992)	0.075		

ABSTRACT CODE: IBS19416-83 - POSTER NO. 39

Hospitalization Outcomes and Long-Term Gastrointestinal Symptoms Fluctuation of Irritable Bowel Syndrome or Functional Dyspepsia Patients Positive for COVID-19

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Objectives: To explore hospitalization outcomes and gastrointestinal (GI) symptoms fluctuation over a 1-year follow-up of COVID-19 patients with irritable bowel syndrome (IBS) or functional dyspepsia (FD) at enrollment compared to COVID-19 patients without any previous GI symptoms/disorders/diseases/surgeries.

Methods: In this retrospective multicenter cohort study, patient charts were reviewed for demographic data, medical history including GI chronic diseases, and hospitalization outcomes. All participants completed the Gastrointestinal Symptom Rating Scale (GSRS) over 4 time points: at COVID-19 onset, at 1, 6, and 12 months, and the Hospital Anxiety and Depression Scale (HADS) over 2 time points: at 6 and 12 months. The cohort was divided into two groups: (1) IBS/FD group (2) control group.

Results: A total of 599 patients were eligible for the study (n=61 IBS/FD group, n=538 control group). There were no differences between the groups regarding hospitalization outcomes. There was a significant decrease in both IBS/FD and control groups in depression [6.17 ± 4.45 at 6 months and 3.17 ± 4.14 at 12 months for IBS/FD group ($p=0.007$) and 3.55 ± 4.02 at 6 months and 3.05 ± 3.74 at 12 months for the control groups ($p=0.019$), respectively] and anxiety levels over time [5.94 ± 4.32 at 6 months and 4.10 ± 4.58 at 12 months for IBS/FD group ($p=0.019$) and 3.58 ± 3.71 at 6 months and 3.26 ± 3.65 at 12 months for the control groups ($p<0.001$), respectively]. The pooled OR's of the effect of IBS/FD over 4 time points ranged from 1.93 for diarrhea to 5.10 for increased distention, and were statistically significant for all GI symptoms, even after adjustments for gender, depression and anxiety. While there was a significant improvement over time in the severity of abdominal pain ($p=0.008$), hunger pains ($p=0.011$), nausea ($p=0.001$), diarrhea ($p=0.005$) and loose stool ($p=0.007$), there was a significant deterioration in constipation ($p=0.002$) (Figure 1), hard stool ($p<0.001$) and feeling of incomplete evacuation ($p=0.007$) among the IBS/FD group.

Conclusions: Changes within and between groups in most of IBS symptoms-based criteria are directly related in time after COVID-19 onset.

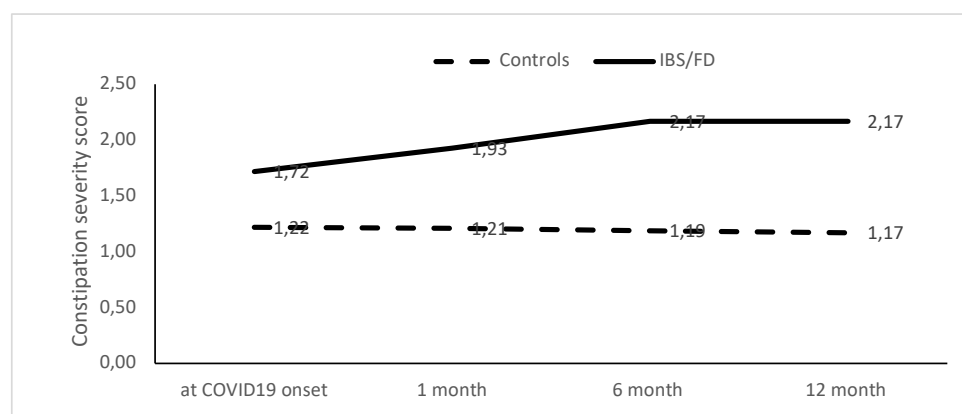


Figure 1. Constipation severity fluctuations over 1 year of follow-up.

ABSTRACT CODE: IBS19414-81 - POSTER NO. 40

Epidemiology and clinical characterization of irritable bowel syndrome in Chilean diabetic patients

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Introduction: Irritable bowel syndrome (IBS) is a prevalent gastrointestinal disorder marked by recurring episodes of abdominal pain or discomfort linked to irregular bowel habits. Both diabetes and IBS share, in their pathophysiology, low-grade inflammation, alterations in the microbiota, and involvement of the autonomic nervous system. However, there is a scarcity of epidemiological studies that specifically address this potential connection.

Aims: To know the local prevalence of IBS in diabetic patients, its demographic characteristics, and subgroups, and overlap with intestinal bacterial overgrowth (SIBO)

Methods: Retrospective, analytic cohort study, based on the universe of patients consulting our service who answered the Rome IV survey, conducted lactulose breath tests and demographic data. Statistics with Shapiro Wilk and comparison of groups with Chi2 test.

Results: Of the 6,254 patients who consulted at our Service between January 2011 and January 2024, 1,669 patients (26%) met the Rome IV criteria for IBS without other comorbidities. Out of the total, 452 patients had type 2 diabetes without other comorbidities. Among diabetic patients, 64 (14%) were insulin-dependent, 79.8% were women, with an average age of 63.5 years and an average BMI of 28.4. In this group, 229 (50.6%) met the Rome IV criteria for IBS (23% IBS-C, 38% IBS-D, and 39% IBS-M). Of the total diabetic patients, 169 (37%) had SIBO (34.4% in those with IBS and 40.3% in those without IBS), which was lower than the frequency reported in the group of IBS without diabetes (58.3%). The characteristics of each group can be observed in Table 1. When comparing both groups with IBS, diabetic patients presented with greater abdominal pain (VAS 6.74 vs 6.2 $p=0.034$).

Conclusions: Symptomatic patients with diabetes have a high prevalence of irritable bowel syndrome, with IBS-D being the most prevalent subtype, accompanied by increased severity of abdominal pain measured by the visual analog scale (VAS), but a lower prevalence of SIBO. Larger studies are needed to better understand the relationship between these two conditions.

MANAGEMENT

ABSTRACT CODE: IBS19485-89 - POSTER NO. 41

Probiotic prescription among gastroenterologist and other healthcare professionals: insights from an Italian Survey**G. Marasco¹, A. Bruni², O. Nardone³, L.R. Lopetuso⁴**

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Background: Probiotics, defined as live microorganisms conferring health benefits, are widely studied for their diverse clinical applications. Despite their potential, challenges persist due to variations in trial methodologies and strain-specific effects. This study aimed to assess different behaviors in probiotics knowledge and prescriptions among Italian healthcare professionals (HP) and gastroenterologists.

Methods: A web-based electronic survey was distributed to all participants to the National Meeting of the Italian Young Gastroenterologist and Endoscopist Association (AGGEI) held in 2023. Probiotic prescription practices for various gastrointestinal conditions, including acute diarrhea, inflammatory bowel syndrome, inflammatory bowel disease and diverticular disease were explored.

Results: Among 200 participants, 142 (71%) completed the survey of whom 59 (41.5%) gastroenterologists and 83 (58.4%) HP (surgeon, nutrition biologist, and other physician). While both groups showed a good knowledge on general principles of probiotic therapy, gastroenterologists showed a broader awareness of probiotic genera ($p < 0.005$). Significant differences were found in probiotic use for acute diarrhea (gastroenterologist 45.76 % vs HP 90.1 %, $p < 0.005$) and H. Pylori eradication (gastroenterologist 50.8 % vs HP 88.7 %, $p < 0.005$), with gastroenterologists preferring single strains and less likely using probiotics (50% vs HP 76.2 %) as additional therapy (30.5% vs HP 11.9%). For IBS treatment, both groups favored multistrain formulations. , but HP tended to continue therapy changing probiotic strain (70.0 %), unlike gastroenterologists (55.1%, $p < 0.005$). For ulcerative colitis, gastroenterologists prescribed probiotics more often (84.4% vs 77.7% HP, $p < 0.005$) but for shorter durations. In Crohn's disease, gastroenterologists prescribed less frequently probiotics (55.8% vs HP 92.4% $p < 0.005$). Gastroenterologists prescribed fewer probiotics for diverticular disease probiotics (68.7% vs HP 92.5% $p < 0.005$) and preferred multistrain formulations (43.9% vs 56.9% HP, $p < 0.005$). In symptomatic uncomplicated diverticular disease HP tended to prescribe probiotics for longer durations (>14 days gastroenterologists 11.7% vs HP 17.5%, $p < 0.005$).

Conclusions: The survey highlights significant differences in probiotic use HP and gastroenterologists. Enhancing probiotic education among healthcare professionals and gastroenterologists is therefore crucial. In addition, further studies to better understand probiotics' role in gastrointestinal disorders through large-scale RCT are needed.

ABSTRACT CODE: IBS19474-87 - POSTER NO. 42

Cyclic vomiting syndrome (CVS): opioids out, tricyclic antidepressants (TCAs) in

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Introduction: The proportion of patients who take opioid based analgesics and cannabis has not been studied in a large cohort of patients with CVS in the UK. Aims: (A) to study the burden of opioid and cannabis use in patients with CVS, (b) to study the clinical response to prophylactic tricyclic antidepressants (TCA) and whether this was augmented by opioid/cannabis intake.

Methods: Clinical characteristics and healthcare outcomes of patients diagnosed with ROME IV CVS in a single neurogastroenterology clinic between January 2016 to December 2023 were retrospectively collected. A standardised clinic template was used to collect data relating to age, sex, gastrointestinal symptoms, medication usage, and patient-reported response to TCA. Patients commenced 10mg TCA for 60 days which was up titrated by 10 mg at each routine outpatient consultation (unless poorly tolerated) until clinical remission was achieved or the maximum dose (50 mg daily) was prescribed. Clinical remission was defined as the absence of stereotypical episodes of vomiting for at least 6 months prior to the last clinic consultation.

Results: 95 patients (male 21%, mean age 30.8±11.8 years) were identified and 84 (88%) were seen on at least two or more occasions with a median duration of follow-up of 22 (IQR: 5, 39) months. The treatment outcomes for all patients treated with TCA are outlined in table 1. At the initial consultation, 35 (37%) and 16 (17%) patients took prescribed opioid analgesics and cannabis, respectively. All were provided with drug cessation advice and were prescribed a TCA: only 12/35 (34%) and 11/16 (69%) of patients adhered to drug cessation advice. On follow-up, 100% of patients who adhered to recommendations to stop opioids and cannabis responded to TCA whilst 0% of patients who continued to take opioids/cannabis responded to TCA. Illicit drugs were found at urine drug screening in 5 patients who failed to respond to TCA (cocaine n=2 and heroin n=3).

Conclusion: This is the first UK study reporting the impact of opioid usage and illicit drugs in patients with CVS. TCAs are useful in treating CVS patients providing they do not consume prescribed opioids or illicit drugs.

Tricyclic antidepressant	n (%)	Final dose	Clinical response	Other comments
Amitriptyline	65 (68.4%)	20 (IQR 10, 30) mg	28 (43%)	Not tolerated at lowest dose in 10/65 (15.3%)
Nortriptyline	26 (27.3%)	30 (IQR 10, 40) mg	9 (34.6%)	Not tolerated at lowest dose in 3/26 (11.5%)

Table 1. Response to tricyclic antidepressants.

MANAGEMENT

ABSTRACT CODE: IBS19393-87 - POSTER NO. 43

Europe's first multidisciplinary training course on disorders of gut-brain interaction for undergraduate students**M.F. Butt¹, A. Dhali², D. Scotto², C. Gilmartin², B. Srichawla³, S. Singhal², S. Gonem², T. Monaghan², J. Frain², M. Corsetti²**

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Introduction: There is a mismatch between the clinical burden of disorders of gut-brain interaction (DGBI) and their representation within medical school and postgraduate curricula. Primary aims: (a) to develop a 6-week course addressing DGBI for medical students as part of the formal medical school curriculum, (b) to compare knowledge of, confidence around and attitudes towards DGBI, in particular irritable bowel syndrome (IBS), post-course vs. pre-course.

Methods: A multidisciplinary team of 8 healthcare professionals delivered 7 teaching sessions, each 2 hours in length, over 6 weeks. Sessions addressed clinical communication skills, IBS, functional dyspepsia, chronic musculoskeletal pain, narcotic bowel syndrome, functional neurological disorders, and functional breathlessness. Non-DGBI sessions were integrated within the course to provide students with a holistic overview of functional medical disorders. Students completed pre-and post-course feedback forms which assessed knowledge of, attitudes towards, and confidence around IBS. Students undertook two post-course objective structured clinical examinations (OSCE) which assessed their ability to take a clinical history from and communicate a diagnosis to a patient with a DGBI. The Angoff method was used to establish the OSCE pass mark and results were standardized to the university pass threshold.

Results: Twenty-nine third-year medical students enrolled on the course and two-point data were collected from 27/29 participants (six [22.2%] male, mean age 20.51±0.70 years). Six questions assessed knowledge around IBS: there was a statistically significant increase in the total number of correct responses post-course vs. pre-course (mean difference in score 2.07 [95% CI 1.53-2.61], $p<0.0001$). Pre-course and post-course changes in confidence around and attitudes towards IBS are shown in table 1. 100% of students passed the OSCE.

Conclusion: To our knowledge, this is Europe's first training course which addresses DGBI within the formal medical school curriculum. This course improves knowledge of, confidence around, and attitudes towards IBS.

ABSTRACT CODE: IBS19419-86 - POSTER NO. 44

Biofeedback outcomes in refractory constipation patients with abnormal balloon expulsion test

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Introduction and Objectives: Functional defecation disorders (FDD) are common in patients with functional constipation (FC) and irritable bowel syndrome with predominant constipation (IBS-C). The diagnosis of FDD subtypes, dyssynergic defecation (DD) and inadequate propulsion (IP), requires balloon expulsion test (BET) and anorectal manometry (ARM) execution.

Biofeedback (BF) has been demonstrated to be effective in DD but its role in IP and evacuation disorders in presence of structural pelvic floor dysfunction (SPFD) is unclear. We therefore aimed to review the data of our patients with FC and IBS-C with abnormal BET to identify possible predictive factors of response to BF.

Methods: One hundred thirty-one Rome III FC (n=100) and IBS-C (n=31) patients with FDD and abnormal BET underwent BF according to a standard approach (Chiarioni, 2005). Patients had previously performed ARM, and Xray-defecography if ARM and BET were discordant. The BF therapist was blinded to the ARM and Xray-defecography results or FC and IBS diagnosis. BF responders were considered to be those patients with both:

- an improvement of at least 1 complete spontaneous bowel movements per week (Tack, 2013);
- a score of 6 or 7 on a scale ranging from 1 (markedly worse) to 7 (markedly better) expressing the defecatory subjective perception (Chiarioni, 2006).

BF response was evaluated after one month from BF course.

Results: Thirty-three patients were diagnosed with IP, 69 with DD and 27 with SPFD.

Eighty-one patients were considered responders to BF (61.8%).

Sex, age and IBS-C showed no significant impact on BF response.

FDD of any etiology responded to BF, while SPFD (e.g. rectocele >4 cm, intussusception extending into the distal anal canal, prolapse beyond the anus, obstructive enterocele with retained contrast at the end of straining) (Chiarioni, 2023; Bharucha, 2022) did not (p<0.001, Tab.1).

Conclusion: To the best of our knowledge, this is the first trial investigating the efficacy of BF on FDD of any etiology in a group of refractory Rome III FC and IBS-C patients with abnormal BET. Our data demonstrate that presence of SPFD seem to predict no response to BF. Comorbid IBS-C did not influence treatment outcome.

Subgroups according to Rome III Criteria			
	Response to BF after one month		p-value
	No	Yes	
IP	5 (15.2%)	28 (84.8%)	<0.001*
DD	20 (28.9%)	49 (71.01%)	
SPFD	23 (85.2%)	4 (14.8%)	

Abbreviations: BF=Biofeedback; IP=Inadequate propulsion; DD=Dyssynergic defecation; SPFD= structural pelvic floor dysfunction

Table 1 - Differences in response of BF according to Rome III classification of FDD subtype.

MANAGEMENT

ABSTRACT CODE: IBS19501-78 POSTER NO. 45

Evaluation of a modified London Protocol featuring only two pushes to diagnose defecation disorders with high-definition anorectal manometry**C. Lambiase¹, R. Tedeschi², A. Grosso², F. Rettura³, L. Cancelli², A. Bottari², M. Corsetti⁴, N. De Bortoli², M. Bellini²**

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Background: Anorectal manometry (ARM) is a useful diagnostic tool to assess defecation disorders in functional constipation or irritable bowel syndrome with predominant constipation. The International Anorectal Physiology Working Group (IAPWG) introduced into clinical practice a standardized sequence of manoeuvres to perform ARM (London Protocol), based mainly on an expert consensus. IAPWG Protocol suggests performing three push attempts, each of 15s duration, to assess recto-anal coordination, with a consensus <75% between experts.

The aim of this study was to evaluate the diagnostic accuracy of a simplified ARM Protocol featuring only two push attempts compared to the IAPWG protocol.

Materials: High-Definition ARM (HD-ARM) traces from 150 patients (118 F, mean aged 54 years) who underwent ARM mainly for faecal incontinence (n=37) or constipation (n=105) were retrospectively reviewed. All traces were performed according to the IAPWG Protocol. Firstly, we evaluated if the mean rectal and anal pressures were different among the three pushes. Subsequently, ARM traces were re-evaluated considering only the first two pushes (as if the third had never been performed), choosing the qualitative best push among them. A new diagnosis was made based on these two pushes. The new diagnosis was compared with the standard to evaluate whether performing only two push attempts could affect the final diagnosis.

Results: According to the IAPWG London Protocol, the qualitative best pushes were the first, the second or the third in 58, 45 and 47 patients, respectively. No statistically significant differences were found in anal and rectal pressures among the three pushes.

Regarding the diagnostic accuracy of a modified London Protocol including only two pushes, we found an almost perfect concordance compared with the standard of practice (K=0.97, Tab.1). This result was also confirmed for the constipated and incontinent patients' subgroup (Tab.1).

Conclusions: Based on our results, it seems that two pushes may be enough to reach an accurate manometric diagnosis of defecation disorders, confirming that the IAPWG Protocol may be redundant. Performing only 2 push manoeuvres may reduce the examination length, reducing patient's discomfort and, in all likelihood, improving HD-ARM's acceptability.

ABSTRACT CODE: IBS19466-88 - POSTER NO. 46

Effectiveness and economic burden impact of a microbial signature fecal test on the diagnosis of Irritable Bowel Syndrome

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Objectives: Irritable Bowel Syndrome (IBS) is a functional disorder affecting 4.0% of the population in Spain and worldwide, which diagnostic is mainly based on clinical parameters. IBS shares many symptoms with other gastrointestinal disorders such as Inflammatory Bowel Disease, making positive diagnosis a difficult task that frequently requires several tests and visits. The aim of this study was to conduct a retrospective review examining the effectiveness of RAID-Dx, a non-invasive microbial fecal test, in the positive diagnosis of IBS and the potential reduction of economic and patient's burden derived from its implementation in clinical practice.

Methods: The study was conducted combining retrospective data collection from tests performed in the standard clinical practice and RAID-Dx results from adult patients meeting Rome III/IV criteria, from the Hospital Universitari de Girona – Institut d'Assistència Sanitària. Effectiveness was assessed by comparing the diagnose obtained from usual diagnostic tests and that obtained from RAID-Dx. The potential impact of the implementation of this test on both economic and patients' burden was analyzed based on the criteria of experts.

Results: From the 34 patients meeting Rome III/IV criteria included in the study, 58.8% (N=20) presented a microbiome profile compatible with IBS according to RAID-Dx results. All these 20 positive-testing patients were confirmed, 75% of which without the need for additional tests. Among patients with an outcome incompatible with IBS (N=14), an alternative diagnosis was reached in 71.5% after performing additional tests (N=10), while the remaining 28.5% (N=4) were considered with its initial diagnostic suspicion of IBS based on clinical criteria. When RAID-Dx diagnose was considered, 70.6% of additional tests were avoid in all analyzed patients. Overall, the results revealed a sensitivity of 83.0% (20/24) and a specificity of 100%, with a potential reduction in average diagnostic costs from 1,723.98 € to 662.93 € requiring half the number of follow-up visits in specialty care.

Conclusion: This study displays the potential of RAID-Dx to change the complex IBS diagnose landscape. This tool could optimize and improve the use of resources by reducing the need for additional tests. Results also suggest a more precise approach within primary care settings.

MANAGEMENT

ABSTRACT CODE: IBS19442-82 - POSTER NO. 47

Exploring adherence to dietary interventions in relation to symptom improvement in patients with irritable bowel syndrome**S. Nybacka¹, S. Störsrud¹, C. Weznaver¹, H. Törnblom¹, M. Simrén¹**

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Objective: Various dietary interventions have shown promise in managing symptoms of irritable bowel syndrome (IBS). In a recent randomized controlled trial, we demonstrated comparable efficacy of a diet combining low fermentable oligo-, di-, monosaccharides and polyols (FODMAP) with traditional IBS dietary advice (LFTD) and a low-carbohydrate diet (LCD) in improving IBS symptoms (Nybacka et al Lancet Gastroenterol Hepatol 2024). In this post-hoc analysis, we investigated the association between adherence to these diets in relation to symptom improvement.

Methods: We included adults with IBS (Rome IV) with at least moderate symptom severity (IBS-SSS ≥ 175), who followed either LFTD or LCD for four weeks. Participants were provided with recipes and all foods needed to prepare the meals during the intervention, free of charge. Adherence was assessed through diaries where all deviations from the meal plans were reported. An adherence score was calculated in which all deviations from the diet regimen were summed up. Complete adherence yielded a score of zero, and the more deviations, the higher the score. A responder to treatment was defined by a reduction in IBS-SSS of ≥ 50 relative to baseline. Multiple linear regression was used to analyse the association between degree of adherence and IBS-SSS at week 4, adjusting for baseline symptom severity.

Results: Of 96 participants on LFTD and 97 on LCD, 87 and 88 participants respectively had completed the diet adherence diary during the intervention. Median adherence score was 3 in both groups (range 0-38 in LFTD, 0-36 in LCD). The most common deviations included sweet treats in LCD (54.5%) and bread and cookies or alcohol in LFTD (41.4%) (Table). A deviation score of ≤ 8 did not yield higher response rates compared to >8 deviations ($p=0.19$ in LFTD, $p=0.72$ in LCD). The total number of deviations was associated with post-intervention symptom severity in the LFTD group ($p=0.026$) but not in the LCD group ($p=0.58$).

Conclusion: Stricter adherence to the dietary regimen was associated with IBS symptom severity after intervention in the LFTD only, suggesting that a less strict LCD treatment may be similarly effective as the strict LCD regimen used in this study, potentially facilitating implementation.

	Low FODMAP + traditional IBS diet	Low carbohydrate diet
N in ITT	96	97
N in PP [§]	87	88
Gender (women), %	82 (85.4%)	76 (78.4%)
Age, y	37.8 (12.9)	39.3 (13.6)
BMI, kg/m ²	25.4 (3.9)	25.3 (4.2)
IBS subtype		
<i>Constipated</i>	41 (42.7%)	43 (44.3%)
<i>Diarrhea</i>	32 (33.3%)	36 (37.1%)
<i>Mixed</i>	21 (21.9%)	11 (11.3%)
<i>Unspecified</i>	2 (2.1%)	7 (7.2%)
Adherence score, median (range)	3 (0-38)	3 (0-36)
Deviations		
<i>Bread or biscuits, N (%)</i>	36 (41.4%)	21 (23.9%)
<i>Vegetables, N (%)</i>	21 (24.1%)	3 (3.4%)
<i>Coffee, N (%)</i> [‡]	9 (10.3%)	NA
<i>Carbonated beverages, N (%)</i> [‡]	12 (13.8%)	NA
<i>Alcohol, N (%)</i> [#]	36 (41.4%)	19 (21.6%)
<i>Pasta or other carbohydrates, N (%)</i>	10 (11.5%)	27 (30.7%)
<i>Candy or sweet treats, N (%)</i>	23 (26.4%)	48 (54.5%)
<i>Fast food, N (%)</i>	22 (25.3%)	14 (15.9%)
IBS-SSS		
<i>Baseline</i>	323 (66)	322 (69)
<i>Post-intervention ≤8 deviations</i>	147 (103)	159 (92)
<i>Post-intervention >8 deviations</i>	218 (96)	188 (101)
Responders to treatment (reduction in IBS-SSS ≥50)		
<i>≤8 deviations</i>	84.3%	75.0%
<i>>8 deviations</i>	70.6%	78.9%

IBS-SSS: irritable bowel syndrome severity scoring system [§]Per-protocol analysis was carried out in participants who returned after intervention and had finished the daily deviation diary. [‡]Limited only in the low FODMAP+traditional IBS diet [#]Low FODMAP+traditional IBS diet had a maximum of 1 unit/alcohol per drinking occasion, whereas the low carbohydrate diet allowed all consumption except for beer

Table: Characteristics and IBS symptom severity of participants partaking in a dietary intervention study.

MANAGEMENT

ABSTRACT CODE: IBS19470-83 - POSTER NO. 48

Perceived knowledge of use of probiotics in irritable bowel syndrome: a cross sectional survey about the tandem-talk between general practitioners and specialists

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Objective: Understanding physicians' perceived knowledge and practice patterns regarding the use of probiotics in irritable bowel syndrome (IBS) will help identify real-life practices, concerns preventing their use, and the findings that could impact clinical practice.

Aim of this cross-sectional survey is to identify and describe physicians' perceived knowledge and practice patterns regarding the use of probiotics in IBS.

Methods: This survey was carried according to the CHERRIES guidelines. Participants to a medical congress (reserved to general practitioners (GP), gastroenterologists (GE), surgeons (SS) and internists (SIM) about the clinical significance of the human microbiota and its resetting, were asked to answer to 38-item questionnaire (through paper copies). The questions covered respondents' self-evaluation of knowledge of probiotics, including the correct definition of probiotics, the knowledge of probiotic strains, and their use in clinical practice. In more details, in IBS, the source of information on probiotics, the self-advising of the use of probiotics, the need for implementation of their knowledge with particular attention to their safety and further concerns.

Results: Data from 68 out of 70 respondents (97.1%) (40 GP, 20 GE, 4 SS, 4 SIM) were analyzed. Half of respondents (50%, n = 34) agreed that probiotics have always a place in IBS and were likely to recommend them (72.1%, n = 882), yet only 44.1% (n = 30) of the population were familiar with the scientific literature about probiotic. The most frequently recognized species of bacteria containing probiotic strains were contained in a multistrain probiotic mixture rather than in a single strain (48.5% vs 41.1 %). The more concerns regarding the administration of probiotics in IBS regard the lack of familiarity with the scientific literature (23.5%). All the respondents requested for additional education on the topic.

Conclusions: The data from this survey shown a lack of knowledge and awareness on the effectiveness and use of probiotics in clinical practice. In the future, the incorporation of this topic in core curriculums and targeted educational programs may help in improving knowledge and awareness of health professionals

ABSTRACT CODE: IBS19425-83 - POSTER NO. 49

Fecal Microbiota Transplantation through colonoscopy for the management of severe refractory irritable bowel syndrome: Preliminary results

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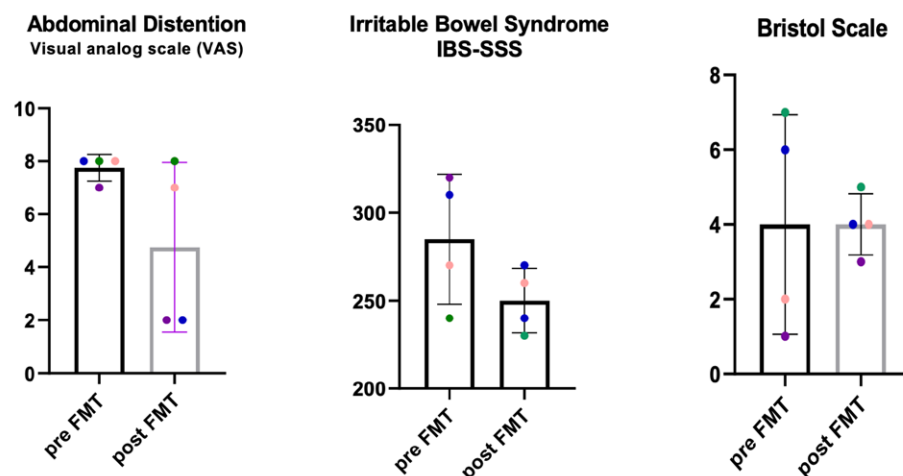
Introduction: Irritable bowel syndrome (IBS) is one of the most common disorders of the brain-gut axis in the general population. Its pathophysiology is multifactorial, including alterations in the microbiota. Management consists of lifestyle changes, use of neuromodulatory drugs, probiotic modifiers, antibiotics, and complementary therapies. In some refractory cases, fecal microbiota transplantation has been suggested as a possible alternative.

Aim: To describe the clinical outcomes of fecal microbiota transplantation (FMT) performed via colonoscopy in adult patients with severe refractory IBS conducted at our university center.

Methods: Descriptive, retrospective study of a series of cases with severe refractory IBS treated with FMT via colonoscopy. Patients included met the following: a) diagnosis of IBS based on Rome IV criteria; b) comprehensive laboratory workup including complete blood count, celiac disease screening, upper endoscopy, and colonoscopy with stepwise biopsies revealing no significant findings; and c) poor or no response to standard therapies including neuromodulators, antispasmodics, nutritional management, mindfulness, and probiotics. Symptom severity was assessed using the IBS-SSS scale. Patients were followed up post-FMT with clinical assessments at 1, 3, and 6 months. Donors meeting clinical criteria underwent blood and stool tests as per international guidelines. FMT was performed via colonoscopy using a fresh stool sample from the donor (at least 50 g in 300 ml of saline solution) obtained no more than 6 hours prior to transplantation.

Results: We included 4 patients with severe refractory IBS, 2 with diarrhea-predominant and 2 with constipation-predominant IBS, with an average IBS-SSS score of 285 points. All patients had Small Intestinal Bacterial Overgrowth demonstrated on lactulose hydrogen breath test. At one-month post-FMT, there was a reduction in IBS-SSS to an average of 250 points, with the primary improvement being a decrease in the visual analog scale for pain and bloating. Half of patients achieving normalization of stool consistency according to the Bristol Stool Scale. These results were maintained during the 6-month follow-up period.

Conclusions: FMT could be considered as an alternative in cases of severe refractory IBS where dysbiosis is suspected. However, a larger number of cases and longer-term follow-up are necessary.



ABSTRACT CODE: IBS19451-82 - POSTER NO. 50

The role of salience network activation in perceiving urgency to defecate

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Objective: Urgency to defecate is defined as a sudden and urgent need to rush to the bathroom and defecate, an exhausting symptom of IBS. Although different measures of visceral hypersensitivity in IBS have shown a relation to changes in resting state functional connectivity (rsFC) within the salience network (SN), the central neural mechanism of urgency to defecate is not well studied. In this study we explored the relationship between faecal urgency and the rsFC specifically within the SN.

Methods: Resting state fMRI were performed as part of ongoing longitudinal personalized multimodal IBS treatment project on inclusion. Urgency was patient self-reported on a 14-day diary. The correlation between faecal urgency and rsFC within the SN for 81 patients with severe IBS was measured using default pipelines of the CONN toolbox in SPM12 initially controlling only for age and sex, subsequently controlling for the possible confounders pain, anxiety, and catastrophizing. All results were false discovery rate corrected.

Results: Urgency to defecate showed strong positive correlations to rsFC between several regions within the salience network. Right rostral prefrontal cortex (RPFC) to the right (p 0.015) and left (p 0.015) anterior insula (AI). Right supramarginal gyrus (SMG) to the right (p 0.002) and left (p 0.002) RPFC; and to the left AI (p 0.035). Controlling for anxiety, revealed additional interconnections between aforementioned regions (figure 1); bilateral RPFC to right AI and left SMG. No significant correlations were found for the anterior cingulate cortex.

Conclusions: Our results show that urgency is associated with very strong positive connectivity within the SN in resting state, which suggests a state of heightened self-awareness contribute to this debilitating symptom. Further after controlling for the effects of anxiety, we see a strong bilateral connectivity between the RPFC and AI implicating an integration between higher cognitive functions and memory with visceral signals. Our IBS cohort will undergo post-treatment fMRI and we aim to study changes in rsFC within the SN in relation to urgency changes.

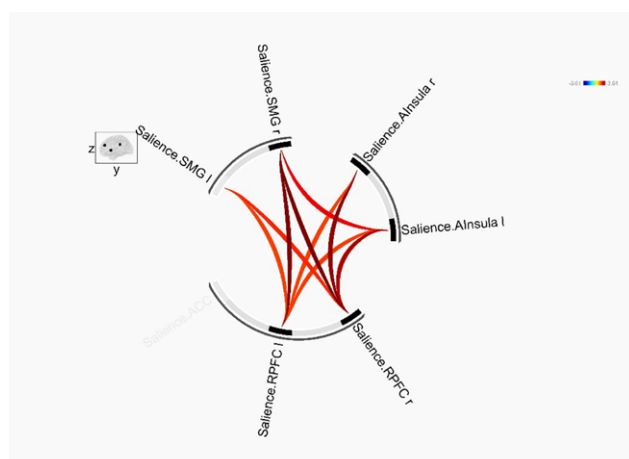


Figure 1. The effect of urgency on connectivity after controlling for age, sex, and anxiety.

ABSTRACT CODE: IBS19415-82 - POSTER NO. 51

Mechanistic analysis of factors associated with post COVID-19 IBS occurrence

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Objectives: Exposure to COVID-19 has been shown previously to be associated with higher risk for irritable bowel syndrome (IBS). However, the specific mechanism underlying this relationship is still unclear. The purpose of the present study was to evaluate a hypothesized model describing a pathway of COVID-19 and its potential influence on clinical and psychological parameters in patients with IBS (Figure 1).

Methods: This study uses data from a multicenter cohort study of 2183 patients with and without COVID-19 diagnosis. All participants completed the ROME IV criteria, Gastrointestinal Symptom Rating Scale (GSRS), and the Hospital Anxiety and Depression Scale (HADS) over 1 year of follow-up. The mediation analysis was performed using PROCESS macro method for parametric mediating variables and the Baron and Kenny's method for non-parametric mediating variables.

Results: The impact of COVID-19 on post COVID-19 IBS is completely passing through presence of dyspnea on admission (adjusted OR=3.561, $p=0.012$), severity of acid regurgitation at 1 month (indirect effect, log odds metric=0.090, 95% CI (0.006-0.180), severity hunger pains at 1 (indirect effect, log odds metric=0.094, 95% CI (0.024-0.178)), and 6 month (indirect effect, log odds metric=0.074, 95% CI (0.003-0.150)), depression at 6 (indirect effect, log odds metric=0.104, 95% CI (0.010-0.225)) and 12 month (indirect effect, log odds metric=0.146, 95% CI (0.023-0.307)) and severity of borborygmus (indirect effect, log odds metric=0.095, 95% CI (0.009-0.203)), abdominal distention (indirect effect, log odds metric=0.162, 95% CI (0.047-0.303)) and increased flatus (indirect effect, log odds metric=0.110, 95% CI (0.005-0.234)) at 12 month. There was also a significant partial mediation of the relationship between COVID-19 and post COVID-19 IBS via presence of dysphagia on admission and constipation and hard stool at 6 and 12 months.

Conclusions: Our findings provide preliminary evidence for psychological and clinical mediators between COVID-19 and post COVID-19 IBS, which may be promising targets for interventions tailored for the treatment or prevention of depression. The presence of some GI symptoms at COVID-19 onset and their persistence should increase the awareness for a potential new onset of IBS diagnosis.

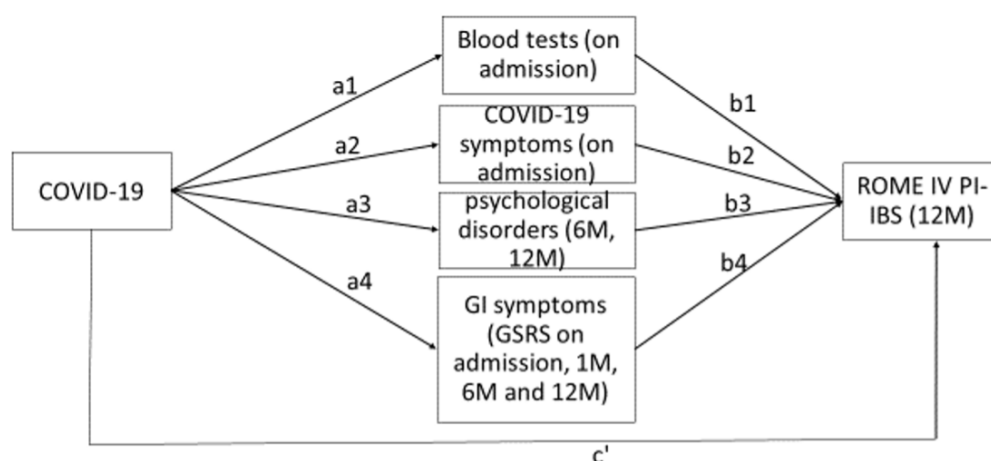


Fig 1. The conceptual framework of the mediation model of the current study.

ABSTRACT CODE: IBS19440-80 - POSTER NO. 52

Colonic volumes in irritable bowel syndrome and healthy individuals; the associations with symptoms and gut physiology

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Objective: The pathophysiological mechanisms of irritable bowel syndrome (IBS) are complex and incompletely known. Studies investigating the role of colonic volumes and their relation with symptoms and measurements of gut physiology in IBS are sparse. The aim of this study was to explore those associations in IBS and healthy individuals.

Methods: Eighteen IBS patients (4 IBS-diarrhea, 5 IBS-constipation, 9 IBS-mixed or IBS-unspecified) and 19 healthy individuals were included. Total and segmental colonic volumes were determined by magnetic resonance imaging (MRI). The GSRS-IBS was used to measure gastrointestinal symptoms and a stool diary (Bristol Stool Form Scale) was completed 14 days before the MRI. Oro-anal transit time (radiopaque markers) and rectal sensitivity (rectal barostat, including pressure thresholds for first perception, defecation, and discomfort) were measured.

Results: The total colonic volume did not differ between IBS patients and healthy individuals (736 ml [528-903] vs 597 [498-939] (median [IQR]); $p=0.44$). In the IBS group, there were trends towards negative associations between total colonic volume and the perceived severity of diarrhea ($r_s = -0.43$; $p=0.08$), as well as the volume of the descending colon and stool frequency ($r_s = -0.48$; $p=0.07$). Other GI symptoms and stool consistency were not associated with colonic volumes. When investigating the physiological parameters in IBS, the total colonic volume was positively associated with oro-anal transit time ($r_s = 0.54$; $p=0.02$) and negatively associated with rectal pressure thresholds for sensations (first perception: $r_s = -0.51$; $p=0.04$, defecation: $r_s = -0.44$; $p=0.09$), Figure 1. A similar pattern was seen when investigating individual colonic segments, with tendencies towards positive associations between segmental colonic volumes and oro-anal transit time, and negative associations with rectal sensory thresholds. The associations in healthy individuals between colonic volumes and oro-anal transit time and rectal sensitivity, respectively, were overall weaker (all $p>0.05$).

Conclusions: In this pilot study, we have shown that larger colonic volumes, measured with MRI, seem to be associated with slower oro-anal transit and rectal hypersensitivity in IBS. This suggests a potential role for measuring colonic volumes in IBS pathophysiology studies, but larger studies are needed to better appreciate subtype differences and their relevance for symptoms.

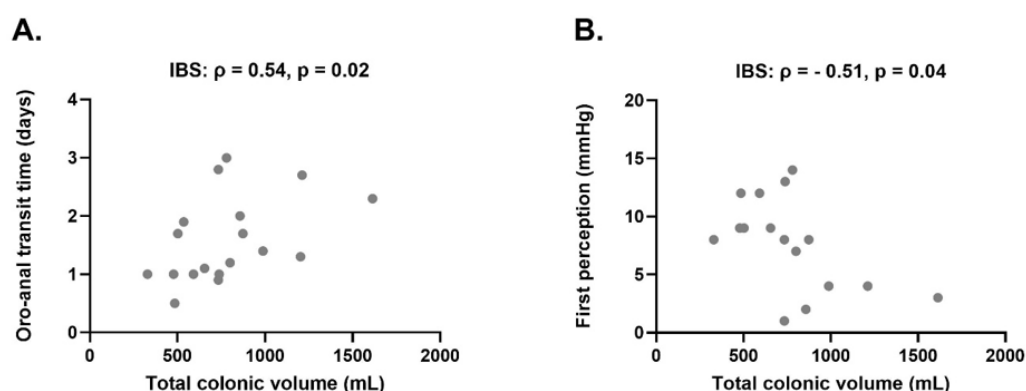


Figure 1. Association between total colonic volume measured with magnetic resonance imaging in IBS patients and (A) oro-anal transit time measured with radiopaque markers and (B) the threshold for first perception during rectal barostat examination, both based on Spearman's correlation.

ABSTRACT CODE: IBS19445-85 - POSTER NO. 53

Differences in symptoms and gut physiology between irritable bowel syndrome subgroups identified by mixture model analysis

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Objective: Irritable bowel syndrome (IBS) is subtyped based on bowel habits. However, an alternative based on combined gastrointestinal (GI), non-GI somatic and psychological symptom profiles has been proposed. This study aimed to validate this novel more comprehensive way to subgroup IBS and investigate differences in symptoms and gut physiology in these groups.

Methods: In total, 760 IBS patients (Rome III and IV) from six study cohorts were included. Subgroups were based on Gaussian mixture model analysis using 13 single-item GI symptom scores (GSRS-IBS), stool frequency and consistency (Bristol Stool Form Scale), 11 single-item non-GI somatic symptom scores (PHQ-12, excluding menstruation problems), and anxiety and depression scores (HADS). Differences between subgroups were investigated for fatigue (MFI), GI-specific anxiety (VSI), IBS-specific quality of life (IBS-QOL), and measurements of gut physiology, including oro-anal transit time (OATT) assessed by radiopaque markers, visceral sensitivity assessed by a rectal barostat procedure and lactulose nutrient challenge test (LNCT), and breath hydrogen and methane production during LNCT as markers for microbial fermentation

Results: Six subgroups based on GI and non-GI symptom profiles were identified: diarrhea with low comorbidities (n=67), constipation with low comorbidities (n=120), overall mild severity (n=166), diarrhea with high comorbidities (n=231), constipation with high comorbidities (n=89), and mixed GI symptoms with high comorbidities (n=87). The groups with high comorbidities had higher levels of fatigue and GI-specific anxiety, and lower QOL compared to the low comorbidities groups, Figure 1. OATT was longer in constipation with low comorbidities vs diarrhea with low comorbidities (1.7 [1.0-2.7] vs 0.9 [0.5-1.3] days (median [IQR]), $p<0.01$), but there was no difference in OATT comparing constipation with high comorbidities vs. diarrhea with high comorbidities. Visceral sensitivity and postprandial hydrogen and methane production did not differ between groups, but with a tendency of methane production to be highest in constipation with high comorbidities.

Conclusion: We have confirmed previously reported IBS subgroups based on combinations of GI and non-GI symptom profiles. Demonstrated associations with fatigue, GI-specific anxiety, and oro-anal transit time, suggest different pathophysiological mechanisms in these novel subgroups. Our results suggest that the presence or absence of non-GI symptoms could be important when planning IBS treatment strategies.

ABSTRACT CODE: IBS19461-83 - POSTER NO. 54

Long-term effects of dietary interventions on fecal microbiota composition in patients with irritable bowel syndrome

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Objective: Dietary interventions are increasingly used for symptom management in irritable bowel syndrome (IBS). However, these diets are suggested to be associated with potentially detrimental changes in gut microbiota. Long-term effects of these dietary interventions are still poorly studied. We therefore aimed to assess the impact of two different dietary regimes and an optimized medical treatment (OMT) on gut microbiota in IBS patients, including the effect of nutrient reintroduction.

Methods: Fecal gut microbiota composition evaluated using GA-map™ Dysbiosis Test were obtained from IBS patients (ROME IV) included in a randomized controlled study, comparing a 4-week intervention with either a diet combining low fermentable oligo-, di-, monosaccharides and polyols (FODMAP) and traditional IBS dietary advice (LFTD) (n = 96); a low carbohydrate diet (LCD) (n = 97); or OMT (n = 101) (Nybacka JMIR Res Protoc 2022). Fecal samples were evaluated before and after intervention and at 3- and 6-months after nutrient reintroduction, including rechallenge with FODMAPs in the LFTD group. To study the effect of these interventions on fecal microbiota, as proxy for gut microbiota, we used Orthogonal Projections to Latent Structures Discriminatory Analysis (OPLS-DA), β -diversity estimated by Bray-Curtis dissimilarity and non-parametric statistical analysis.

Results: No alterations were seen in the overall fecal microbiota profiles in either of the groups, when comparing baseline vs. end of intervention by OPLS-DA (defined by unsatisfactory R2Y and Q2 values). All intervention groups presented similar between-patient microbiota dissimilarity at baseline (not shown) and 4-weeks after intervention (Fig 1A). Further, no differences were detected in fecal microbiota diversity within patients' overtime, indicative of a stable overall gut microbiota (Fig 1B). However, the dietary regimes, but not the OMT changed relative abundance of some bacterial taxa including *Bifidobacterium* spp. and butyrate-producing *Eubacterium rectale* after intervention, but these returned to baseline levels after reintroduction of nutrients (Fig 1C).

Conclusion: Diet modulates gut microbiota and while the 4-week dietary regimes had a larger effect on individual gut microbial targets compared to OMT, the effect on the overall gut microbiota composition was only modest. In addition, the microbial changes were not persistent over time, highlighting the importance of nutrient reintroduction after a restrictive dietary regime.

ABSTRACT CODE: IBS19494-89 - POSTER NO. 55

Loss of vascular barrier integrity is associated with symptoms in irritable bowel syndrome

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Objective: Irritable bowel syndrome (IBS) is a disorder of the gut-brain axis and one of the most common gastrointestinal syndromes. IBS is characterized by abdominal pain associated with defecation or a change in bowel habits. The pathophysiology of IBS is multifactorial including epithelial barrier dysfunction, a key element at the interface between the gut lumen contents and the deeper intestinal layers as well as the brain. The aims of this study were to investigate the morpho-functional integrity of the vascular barrier and to correlate barrier dysfunction with IBS symptoms.

Methods: 48 healthy subjects (AC) and 144 patients with IBS (61 IBS-D, 51 IBS-C and 32 IBS-M) were enrolled in the study. Rome IV criteria, Bowel disease questionnaire, Short Form 12, Hospital Anxiety Depression Scale were used to phenotype patients. Immunohistochemistry, western blot and electron microscopy were used to characterize the vascular barrier. Vascular permeability was evaluated by assessing two markers: plasmalemma vesicle-associated protein-1 (PV1) and vascular endothelial cadherin (VEC). A translational model based on HUVEC was used to evaluate permeability changes induced by mediators spontaneously released by mucosal biopsies, and to highlight the underlying molecular mechanisms. Blood levels of 16S rRNA (a surrogate marker of microbiome translocation) and sCD14 (systemic marker of innate immune response) were assessed. Correlation analyses between experimental and clinical data were performed.

Results: Mucosal vessel density was significantly increased in the colonic mucosa of IBS patients compared to AC ($P<0.01$). PV1 expression was increased ($P<0.01$) while VEC expression was decreased in the colonic mucosa of IBS patients compared to AC ($P<0.05$). Compared to AC, IBS mucosal mediators increased permeability in the HUVEC monolayer through the activation of protease-activated receptor (PAR)-2 and histone deacetylase (HDAC)11, resulting in VEC downregulation. Compared to controls, IBS patients had significantly increased levels of 16S rRNA and significantly decreased levels of sCD14. PV1 expression significantly correlated with anxiety, depression and health-related quality of life scores reported by IBS patients.

Conclusions: Taken together these data provide novel insights into the molecular basis of increased vascular permeability contributing to the clinical manifestations of IBS.

ABSTRACT CODE: IBS19497-92 - POSTER NO. 56

Effect of *Pediococcus acidilactici* CECT7483, *Lactoplantibacillus plantarum* CECT7484 and *Lactoplantibacillus plantarum* CECT7485: on permeability alterations induced by irritable bowel syndrome mediators: a transcriptomic and metabolomic study

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Objective: The pathophysiology of irritable bowel syndrome (IBS) is complex and involves several factors including intestinal permeability alterations. The soluble mediators spontaneously released by the colonic mucosa (SUP) of IBS patients increased paracellular permeability in the in vitro model based on Caco-2 cells (1). The aims of this study were to evaluate the effect of probiotic blend consisting of *Pediococcus acidilactici* (CECT7483) and *Lactobacillus plantarum* (CECT7484 and CECT7485) on Caco-2 permeability and transcriptomic profile and to correlate these results with the metabolites produced by the probiotic blend.

Methods: 11 IBS-D, 10 IBS-M and 7 asymptomatic control (AC) were enrolled. IBS patients were diagnosed according to ROMEIV criteria. All subjects enrolled in the study were 18-65 years old and without relevant organic disease or dietary intolerance. IBS/AC SUP were incubated on Caco-2 monolayer with or without the probiotic blend (104 and 106). Permeability changes were evaluated by assessing the flow of dextran-FITC to the Caco-2 monolayer. At the end of permeability experiments RNA was extracted and used for library preparation for RNAseq analysis. Gene expression was validated by real-time qPCR. Untargeted metabolomics approach was used.

Results: Both doses of probiotic blend significantly recovered permeability changes induced by IBS-SUP. RNAseq results, validated by qPCR showed that the co-incubation of the higher dose of probiotic blend and IBS-SUP compared to IBS-SUP alone induced a significant increase in the expression of Cytochrome P450 Family 1 Subfamily A Member 1 (CYP1A1) ($P < 0.05$) and a decrease in the expression of HtrA Serine Peptidase 1 (HTRA1) gene. On the basis that CYP1A1 expression is induced by the activation of the aryl hydrocarbon receptor (AhR), we evaluated the production of indoles, natural ligand of AhR, by the strains contained in the probiotic blend. We found that the Indole-3-lactic acid was the most produced one.

Conclusions: This study demonstrated the molecular mechanisms underlying the effect of the probiotic blend containing *Pediococcus acidilactici* CECT7483, *Lactobacillus plantarum* CECT7484, and *Lactobacillus plantarum* CECT7485 on an in vitro model of intestinal permeability.

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ABSTRACT CODE: IBS19402-78 - POSTER NO. 57

Chitin-glucan in IBS: from bench to bedside

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Chitin-glucan (CG), a dietary prebiotic, holds promise in managing irritable bowel syndrome (IBS). Preclinical studies indicate CG's potential to alleviate visceral pain, inflammation, and promote mucosal regeneration. In an open-label trial with 120 IBS patients, CG-simethicone treatment significantly improved symptoms like abdominal pain, bloating, and distension, with high tolerability. These findings underscore CG's potential as a therapeutic option for IBS, emphasizing the need for further robust controlled trials to confirm its efficacy.

Given the challenges in treating IBS, exploring alternative approaches is crucial. Our research focused on CG's effects in preclinical studies assessing visceral analgesia, intestinal inflammation, and barrier function, followed by an open-label trial in IBS patients.

In preclinical investigations, CG administered at a human equivalent dose (HED) of 1.5-3 g/d demonstrated analgesic effects in rats and anti-inflammatory properties in mice with colitis. Notably, CG at 3g/d HED significantly decreased visceral perception by 14% after 2 weeks and reduced inflammation by 50%, promoting mucosal regeneration in DSS-induced colitis mice. Furthermore, CG at 1.5g/d HED reduced visceral pain perception by 20% after 5 weeks of treatment. Mechanistically, CG induced μ -opioid receptor (MOR) and cannabinoid-2 (CB2) receptor expression while reducing pro-inflammatory cytokines like IL-1 β and IL-8 mRNA, and upregulated barrier-related genes such as muc5AC, claudin-2, and ZO-2.

The open-label trial enrolled IBS patients who received CG at a dose of 1.5 g/d and simethicone at 0.75 g/d for four weeks. Results showed significant improvements in abdominal pain, bloating, and the impact on daily life. Tolerability was excellent, with no severe adverse events reported.

Overall, CG represents a promising avenue for IBS management, offering symptomatic relief with favorable tolerability. However, further investigation through controlled trials involving a larger patient population is necessary to validate its efficacy and safety comprehensively.

ABSTRACT CODE: IBS19457-88 - POSTER NO. 58

In-vitro modelling of the human gut microbiome to study intestinal health and disease

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Objective: In-vitro models of complex microbiomes could advance clinical microbiome research, but such models are sparsely described and challenging to apply to date. Here we present potential solutions to crucial challenges (sample storage and feeding strategies) implemented in our in-vitro microbiome model based on fresh human stool samples.

Methods: Stool samples were collected using an anaerobic microbiome collection kit (GutAlive®, MicroViable therapeutics, Spain) and stored for up to 48 hours. Faecal slurries were cultured in a DASbox® mini bioreactor system (Eppendorf, Germany) for five days with either no-feeding, batch, or continuous feeding. Microbial communities were analysed via 16S rRNA gene sequencing.

Results: Sample storage for up to two days did not significantly alter the microbial community structure. Although significant decline in alpha diversity and changes in beta diversity throughout the experiment were evident, storage time did not influence these developments.

Interestingly, the initial composition of the stool sample could be rescued by reducing the feeding frequency. "Fasted" cultures retained most of their alpha diversity as well as community structure throughout the experiment, followed by batch feeding once per day and continuous feeding, which was most detrimental to microbial diversity.

Conclusions: Stool samples for in-vitro microbiome models can be anaerobically stored for up to two days. The amount of nutrients supplied to the cultures modulates the microbiome in culture, whereby nutrient restriction preserved diversity. This finding indicates that our platform might be a potential model for intermittent fasting or other microbiome modulating interventions in various settings.

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