VOLUME 6 - ISSUE 2, (MAY 2024)





"Urinary Microbiome" The New Frontier in Understanding IC/BPS

01/04

Until recently, urine was considered sterile in the healthy subject and the presence of bacteria in the urine was associated with a urinary tract infection (UTI). However, in the early 2010s, use of high-throughput molecular DNA sequencing of bacterial 16S rRNA genes enabled the analysis of complex microbial communities inhabiting the human urinary tract. It is now widely accepted that the bladder has a healthy bacterial flora: the urinary microbiome.



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Microbiome is a term used to define the combined community of commensal, symbiotic and pathogenic microorganisms that exist throughout the human body. Each body site has a specific microbiota, dependent on the individual's habits, geographical location and genetic make-up. The microbiome can be vital in maintaining health, but when it becomes disrupted it enters a state of 'dysbiosis,' which may contribute disease. An imbalance of to the gastrointestinal tract microbiota, for example, has been associated with inflammatory bowel disease, asthma and obesity. It is therefore plausible that dysbiosis in the bladder microbiome could be responsible for chronic disease states. Studies detailing the composition of the urinary microbiome and linking the healthy urinary microbiome with health, and urinary dysbiosis with disease, are therefore attracting much interest but are still in their infancy.

The urinary microbiome alters in response to various factors, such as health and disease, well as as menopausal status. In healthy females, the most abundant genera of bacteria found the bladder in include Lactobacillus, Prevotella, Streptococcus and Gardnerella.

02/04

Microbiome research in Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS) has emerged as a frontier in understanding the complex interplay between the urinary microbiota and bladder health. The urinary microbiome, once thought to be sterile, is now recognized as a dynamic ecosystem inhabited by diverse microbial communities that play a crucial role in maintaining bladder homeostasis and immune function.

Latest Updates

GIBS 2024 9th Annual Congress on IC/BPS 24th & 25th August 2024 @Pride Plaza Hotel, New Delhi

GIBS MUA Periodic Case-Based Discussion 4th May 2024

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Here's an elaboration on microbiome research in IC/BPS:

1. Dysbiosis in the Urinary Microbiome:

Recent studies have revealed alterations in the composition and diversity of the urinary microbiome in IC/BPS patients compared to healthy individuals. Dysbiosis, characterized by shifts in microbial taxa abundance and community structure, has been observed in IC/BPS patients, with a predominance of potentially pathogenic bacteria and a depletion of beneficial commensals. Dysbiotic changes in the urinary microbiome may contribute to chronic inflammation, urothelial dysfunction, and symptom exacerbation in IC/BPS patients.

2. Impact of Microbial Metabolites:

The urinary microbiome produces a myriad of metabolites, including short-chain fatty acids (SCFAs), lipopolysaccharides (LPS), and neurotransmitters, which can influence bladder physiology and immune responses. Dysregulated production of microbial metabolites in IC/BPS patients may disrupt mucosal barrier integrity, activate inflammatory pathways, and sensitize bladder afferent nerves, contributing to pain perception and urinary symptoms. Understanding the role of microbial metabolites in IC/BPS pathogenesis may identify novel therapeutic targets for modulating the microbiome-host interactions and restoring bladder homeostasis.

3. Microbiome-Immune Interactions:

The urinary microbiome interacts closely with the host immune system, shaping immune cell recruitment, cytokine production, and tissue inflammation in the bladder mucosa. Dysbiotic changes in the urinary microbiome may trigger aberrant immune responses, characterized by increased pro-inflammatory cytokine expression, immune cell infiltration, and tissue remodeling in IC/BPS patients. Immune-microbiome interactions in IC/BPS pathogenesis highlight the importance of understanding the crosstalk between microbial dysbiosis and immune dysregulation in driving disease progression and symptom severity.

03/04

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4. Potential Therapeutic Interventions:

Manipulating the urinary microbiome through targeted interventions, such as probiotics, prebiotics, antibiotics, and fecal microbiota transplantation (FMT), holds promise for restoring microbial balance and ameliorating symptoms in IC/BPS patients. Probiotic supplementation with beneficial bacterial strains, such as lactobacilli and bifidobacteria, may promote urothelial integrity, modulate inflammatory responses, and inhibit pathogen colonization in the bladder. Prebiotics, which selectively nourish beneficial microbes, and antibiotics, which target pathogenic bacteria, may alleviate dysbiosis and attenuate symptom severity in select IC/BPS patients. FMT, though still investigational, offers a potential avenue for reshaping the urinary microbiome and restoring microbial diversity in refractory IC/BPS cases.

5. Personalized Microbiome-based Therapies:

The development of personalized microbiome-based therapies tailored to individual patient profiles holds promise for optimizing treatment outcomes and reducing disease burden in IC/BPS. Integrating microbial profiling, host immune profiling, and clinical phenotyping enables precision medicine approaches that target specific dysbiotic patterns and immune signatures in IC/BPS patients. Multidisciplinary collaborations between urologists, microbiologists, immunologists, and bioinformaticians are essential for translating microbiome research findings into clinically actionable interventions that improve patient outcomes and quality of life.

In summary, microbiome research in IC/BPS represents a paradigm shift in our understanding of bladder health and disease pathogenesis. By elucidating the role of microbial dysbiosis, metabolite signaling, and immune-microbiome interactions in IC/BPS, researchers aim to identify novel diagnostic biomarkers, therapeutic targets, and personalized treatment strategies that address the underlying causes of this debilitating condition. Continued research efforts and clinical trials are needed to validate microbiome-based interventions and integrate them into routine clinical practice, ultimately improving outcomes for IC/BPS patients.

04/04

The Author



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GIBS Core Member



BLADDER PAIN SOCIETY

August 24th & 25th, 2024

GIBS 2024

9th Annual Congress on IC/BPS

CONTAINING THE BLADDER BLAZE

Pride Plaza Hotel, Aerocity, New Delhi, India



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9th Annual Congress on IC/BPS

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GIBS 2024

HIGHLIGHTS

Orations by sought-after International Stalwarts

Release of GIBS Guidelines V3

- Paper Presentation
- **Newer Modalities**
- 🕑 360 Turn in Knowledge
- **V** Future of IC with AI
 - Pride Plaza Hotel, Aerocity, New Delhi, India



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GIBS 2024 9th Annual Congress on IC/BPS

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CALL FOR ABSTRACT

LAST DATE FOR SUBMISSION: MAY 31ST, 2024

Oresentation Format: In Person

🕑 Date: 25th August 2024

🕑 Time: 09:00AM - 10:30AM IST

Finalist Announcement: By 1st June

Limited Slots Available!

Registration: Mandatory!

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GLOBAL INTERSTITIAL CYSTITIS BLADDER PAIN SOCIETY

August 24th & 25th, 2024

GIBS 2024 9th Annual Congress on IC/BPS

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Dr. Bhojraj Leutiel	Nepal	Dr. Sakineh Hajebrahimi	Iran
Dr. George Kasyan	Russia	пајеманни	
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		Dr. Warren Lo	Malaysia
Dr. Olga Plekhanova	Russia		
		Dr. William Ong	Malaysia
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		Dr. Yadgar Shwani	Iraq







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GIBS 2024 9th Annual Congress on IC/BPS

CONTAINING THE BLADDER BLAZE SCIENTIFIC PROGRAM TOPICS

- How do we manage IC/BPS in our Country Across the Globe ? (Canada, Iran, Malaysia, Nepal, Netherlands, Russia)
 - **Phenotyping in IC/BPS** Evolution, Recent concepts, Treatments linked to Phenotypes
 - Al in IC/BPS Diagnosis & HL, Phenotyping, Treatments
- IC/BPS as Pelvic Pain
- Gynecologists view, Laparoscopy, Pelvic Floor, Pudendal Neuralgia & MRN, Neuromuscular Disorder, NGS in Pelvic Pain
- Having Brain in Bladder Brain to Bladder - Neuroanotomy & Bladder to Brain - In the clinic
- Newer Modalities in treatment of IC/BPS, Oral Agents, Intravesical Agents, Botox, Stem Cell Therapy, Physical Therapy - SWT, PRP
- Hunner's Lesions (HL) Etiopathogenesis, Cystoscopic appearance, Treatments, Dietary Influences

More attractions - Competitive papers session Case Based Panel Discussions, Quiz.



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'Ask the Experts'



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Categories	NATIONAL DELEGATES			
	Till 31st May	1st June – 15th Aug	16th August Onwards (Onspot)	
GIBS Lifetime Members	INR 5000	INR 8000	INR 13000	
Non Members	INR 10000	INR 15000	INR 20000	
PG/AHP*	INR 3500	INR 6000	INR 10000	

Categories	INTERNATIONAL DELEGATES			
	Till 31st May	1st June – 15th Aug	16th August Onwards (Onspot)	
GIBS Lifetime Members	USD 75	USD 100	USD 150	
Non Members	USD 150	USD 200	USD 250	
PG/AHP*	USD 60	USD 80	USD 125	

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