

A REVIEW OF EMERGING ORAL SYSTEMIC THERAPIES FOR INTERSTITIAL CYSTITIS/BLADDER PAIN SYNDROME (IC/BPS)

Authors: Dr. Vikky Ajwani, Dr. Rutvika Pardeshi, Dr. Sahil Pathak

Recent advances in the treatment of Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS) have brought several novel oral systemic drugs to the forefront, each addressing different aspects of the complex pathophysiology of this debilitating condition. This review examines the therapeutic potential and clinical outcomes of these emerging treatments, highlighting their mechanisms of action, efficacy, and safety profiles.

PHOSPHODIESTERASE TYPE 5 INHIBITORS (PDE5I):

The role of alpha 1a-adrenoceptors in enhancing bladder nociceptor excitability is well-established. Silodosin, an alpha 1a-adrenoceptor blocker, has shown significant promise in reducing pain associated with IC/BPS. Doses of 8 to 16 mg daily led to considerable pain relief, with improvements noted as early as eight weeks into the treatment. The drug's safety profile is commendable, with no adverse effects on alpha 1beta-adrenoceptors and minimal risk of dizziness or orthostatic hypotension, even at higher doses. Thus, silodosin represents a viable and well-tolerated option for managing refractory IC/BPS.²



Phosphodiesterase type 5 inhibitors (PDE5i), particularly tadalafil, have emerged as promising therapies for IC/BPS. PDE5i are known to mitigate bladder afferent hyperexcitability, a key factor in the disease's pathogenesis. Clinical studies have demonstrated that tadalafil significantly improves urinary frequency, overactive bladder symptoms, and quality of life within one month. By the three-month mark, notable reductions in pain intensity and increases in voided volume were observed. Tadalafil's safety profile is favourable, with only minor, self-resolving adverse effects reported, making it a well-tolerated option for patients refractory to conventional treatments.¹



ALPHA 1A-ADRENOCEPTOR BLOCKERS:

»» NEWSLETTER ««**TGF- β
INHIBITORS:**

Axitinib, a tyrosine kinase inhibitor targeting VEGF and PDGF receptors, has demonstrated substantial therapeutic potential. In chronic animal models of cystitis, axitinib significantly improved pain thresholds, reduced non-voiding contractions, and enhanced micturition intervals and volumes. Additionally, it alleviated urothelial denudation, angiogenesis, mast cell infiltration, and fibrosis. While further human studies are necessary, axitinib's efficacy in these models underscores its potential as a powerful treatment for IC.⁴

**PURINERGIC
SIGNALLING
MODULATORS:**

Transforming growth factor- β (TGF- β) inhibitors have shown significant potential in treating IC/BPS. These inhibitors target key pathways involved in the disease's progression, including fibrosis and inflammatory responses. Notably, SB431542 emerged as the most effective TGF- β inhibitor, improving urinary function and reversing histological damage in IC/BPS mouse models. The inhibition of TGF- β effectively ameliorates abnormal nociceptive mechanisms and bladder urothelium dysfunction, marking it as a promising avenue for future therapeutic development.³

**TYROSINE
KINASE
INHIBITORS:**

Gefapixant, a selective P2X₃ receptor antagonist, represents a novel approach in targeting purinergic signalling pathways implicated in IC/BPS. By inhibiting ATP-induced activation of afferent nerve endings, Gefapixant has shown significant reductions in pain and improvements in urinary symptoms within just four weeks of treatment. Although promising, additional clinical trials are needed to fully establish gefapixant's efficacy and safety profile.⁵

»» NEWSLETTER ««

TGF-B INHIBITORS:



Transforming growth factor- β (TGF- β) inhibitors have shown significant potential in treating IC/BPS. These inhibitors target key pathways involved in the disease's progression, including fibrosis and inflammatory responses. Notably, SB431542 emerged as the most effective TGF- β inhibitor, improving urinary function and reversing histological damage in IC/BPS mouse models. The inhibition of TGF- β effectively ameliorates abnormal nociceptive mechanisms and bladder urothelium dysfunction, marking it as a promising avenue for future therapeutic development.³

CONCLUSION

In conclusion, the landscape of IC/BPS treatment is evolving with the advent of these newer oral systemic drugs, each offering unique mechanisms of action and promising therapeutic benefits. While ongoing research is essential to fully understand their efficacy and safety, these advancements provide hope for more effective and well-tolerated treatments for patients suffering from this challenging condition.



AUTHORS



Dr. Vikky Ajwani

Consultant Urologist
The Cure Urology Hospital
Vadodara
GIBS Core Committee
Member



Dr. Rutvika Pardeshi

MBBS,
GCS Medical College,
Hospital and Research
Centre,
Ahmedabad, Gujarat



Dr. Sahil Pathak

MBBS,
GCS Medical College,
Hospital and Research
Centre,
Ahmedabad, Gujarat

REFERENCE



Mendes PA, Dias N, Simaes J, Dinis P, Cruz F, Pinto R. Daily low dose of tadalafil improves pain and frequency in bladder pain syndrome/interstitial cystitis patients. *Turk J Urol.* 2022 Jan;48(1):82-87. doi: 10.5152/tud.2022.21292. PMID: 35118993; PMCID: PMC9612742.



Abreu-Mendes P, Araújo-Silva B, Charrua A, Cruz F, Pinto R. Silodosin Improves Pain and Urinary Frequency in Bladder Pain Syndrome/Interstitial Cystitis Patients. *J Clin Med.* 2022 Sep 26;11(19):5659. doi: 10.3390/jcm11195659. PMID: 36233527; PMCID: PMC9571782.



Taga H, Kishida T, Inoue Y, Yamamoto K, Kotani SI, Masashi T, Ukimura O, Mazda O. TGF- β inhibitor treatment of H₂O₂-induced cystitis models provides biochemical mechanism for elucidating interstitial cystitis/painful bladder syndrome patients. *PLoS One.* 2023 Nov 6;18(11):e0293983. doi: 10.1371/journal.pone.0293983. PMID: 37931000; PMCID: PMC10627456.



Shin, J.H., Ryu, CM., Yu, H.Y. et al. Therapeutic effects of axitinib, an anti-angiogenic tyrosine kinase inhibitor, on interstitial cystitis. *Sci Rep* 13, 8329 (2023). <https://doi.org/10.1038/s41598-023-35178->



Lopez SR, Mangir N. Current standard of care in treatment of bladder pain syndrome/interstitial cystitis. *Ther Adv Urol.* 2021 Jun12;13:17562872211022478.doi:10.1177/17562872211022478.PMID:34178118;PMCID: PMC8202321



GIBS
GLOBAL INTERSTITIAL CYSTITIS
BLADDER PAIN SOCIETY
**CONTAINING THE
BLADDER BLAZE**

24th & 25th August 2024

POST EVENT REPORT

We are thrilled to announce that the **Ninth Annual Congress, GIBS 2024**, held in **New Delhi on 24-25 August 2024** was a resounding success under the theme, “**Containing the Bladder Blaze.**” This year's event brought together a global audience to share knowledge, discuss advancements, and advocate for compassionate care for patients with IC/BPS.

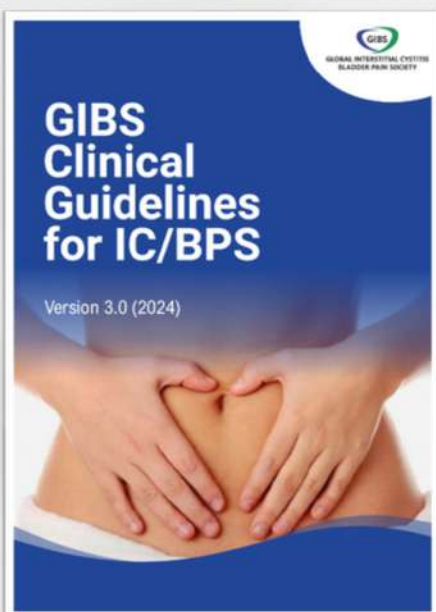
The congress opened with a **welcoming address from Dr. Rajesh Taneja [Chairman GIBS]**, who reflected on the history and milestones of GIBS. His speech highlighted the dedication and hard work that have brought us to this significant point in our journey.

Key topics discussed included **diagnosis, treatment, management, diet, AI in IC/BPS, Stem Cell Therapy & PRP and the disease scoring system for IC/BPS.** With over **130 registrations from around the world**, both in-person and online, the event underscored the ongoing struggle with IC/BPS and our collective commitment to improving the quality of life for those affected.

A highlight of the congress was the Abstract Presentation Competition, which saw an impressive array of submissions. **Five abstracts** were selected for presentation, with **Dr. Prashasya Goel** emerging as the winner and **Dr. Apeksha Raheja** as the runner-up.

Additionally, a **Scientific Quiz competition** added an element of fun, with **Dr. Sudeep Singh (India)** winning and **Dr. Yakov Mirkin (Russia)** as the runner-up.

THE GIBS GUIDELINES VERSION 3.0 [2024] WAS RELEASED FOR THE WORLD!



**SCAN FOR GIBS
GUIDELINES**



9th 2024 GIBS



GLOBAL INTERSTITIAL CYSTITIS
BLADDER PAIN SOCIETY

CONTAINING THE
BLADDER BLAZE

24th & 25th August 2024

We extend our heartfelt thanks to **GIBS Core Committee, Session conveners and to all delegates, both online and offline**, our esteemed faculty, and Sponsors. A special acknowledgment goes to **Mr. Vishal Jajodia and Ms. Swati Jajodia (Patrons)** for their unwavering support and vision for GIBS. Their efforts, along with those of **Swati Spentose Pvt. Ltd.**, have been instrumental in elevating our initiatives.

Finally, **Dr. Sanjay Pandey [Secretary GIBS]** concluded the event by expressing gratitude to all attendees and invited everyone to join us for the **10th Annual Anniversary Congress of GIBS in 2025** scheduled for **23rd & 24th August 2025**, which will be held in **Mumbai, India**.

Thank you all for your participation and support. We look forward to seeing you at GIBS 2025!





GLOBAL INTERSTITIAL CYSTITIS,
BLADDER PAIN SOCIETY

Announcing

10th

Anniversary

of

GIBS 2025

MUMBAI

**DECODE - DEMYSTIFY &
DRIVE IC/BPS**



**SCAN & REGISTER
NOW**



**&
Secure your Place!!**

GRAB THE EARLY BIRD DISCOUNT!

For more information kindly visit : www.gibsociety.com

Kindly send us your query in advance ✉ info@gibsociety.com 📞 +91 80972 53466 📠 +91 87795 15840