

The importance of mast cells in interstitial cystitis/bladder pain syndrome

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Dear Editors,

I am writing in response to the letter you sent to me from Sigrid Regauer, MD, Professor of Pathology, regarding my commentary on mast cells in interstitial cystitis/bladder pain syndrome (IC/BPS). As Dr. Regauer points out in her letter “Overall, there is agreement that mast cells play an intricate role in pain syndromes and in particular in BPS/IC. Mast cells participate early in the disease development in nociceptive pain, e.g., sensitization of nerve fibers, and their products continue to perpetuate both acute and chronic pain, leading to the difficult-to-treat neuropathic pain. This situation makes mast cells an interesting therapeutic target.”

In response to Dr. Regauer’s comments on which stain is the best for detecting mast cells, immunohistochemistry using anti-mast cell tryptase is indeed a very good stain. However, if one is counting the number of mast cells, CD-117 is a more accurate stain because it stains both mast cells and degranulated mast cells. This is exactly the point. If one misses the degranulated mast cells, the mast cell count will be underestimated, and the diagnosis possibly missed.

Other things to consider:

- (I) A study of biopsies done on 56 patients that include four categories (overactive bladder, IC/BPS, IC/BPS with Hunner’s Lesions, and controls), while commendable, is a relatively small study. The IC/BPS group includes only 19 patients. The Hunner’s lesions patients may be a special subset of IC/BPS or possibly a different disease altogether;
- (II) One must also consider the possibility that there could be equal numbers of mast cells in both IC/BPS patients and controls. IC/BPS may be a condition of inappropriately activated mast cells, i.e., ‘hyper-responsive’ mast cells, and therefore degranulate more frequently;
- (III) An additional possibility is that there are an equal number of mast cells in both BPS/IC patients

and controls, but the mast cells may release inflammatory mediators without degranulation;

- (IV) The likelihood that the process of transgranulation, where mast cells form filopodia that attach directly to the neuronal membrane of pain fibers, the pain fibers take up the inflammatory mediators via endocytosis and send nerve impulses to the CNS (specifically to the limbic system, thalamus and cortex) cannot be overstated;

- (V) I agree with Dr. Regauer that “this situation makes mast cells an interesting therapeutic target”.

It may also explain the etiology or an etiology of IC/BPS and provide diagnostic testing, and/or a marker for the condition, thereby reducing the amount of time to diagnosis and treatment.

Interestingly, I presented a paper on this very topic at the ESSIC meeting held in Philadelphia in the spring of 2014. There appeared to be absolutely no interest in the topic, and there was not one question asked by the audience after my talk.

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None.

Footnote

Conflicts of Interest: The author has no conflicts of interest to declare.

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