

Opinion Article

Bladder pain syndrome and its causes

Robert Aldere*

Department of Urology, Stony Brook University, New York, USA.

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ABOUT THE STUDY

A form of bladder pain condition called Interstitial Cystitis (IC) causes persistent pain in the bladder and pelvic floor that has no known etiology. It is known as the female urologic persistent pelvic discomfort syndrome. The urge to urinate immediately, frequently, and with pain during sex are all symptoms. Lower life quality and depression are linked to IC. Many of those affected also suffer from fibromyalgia and irritable bowel syndrome. There is no recognised cause of interstitial cystitis. Although it can, it usually does not run in families. After other disorders have been ruled out, the diagnosis is typically made based on the symptoms. The urine culture typically comes up negative. On cystoscopy, an ulcer or infection may be visible. The overactive bladder, Urinary Tract Infection (UTI), sexually transmitted diseases, prostatitis, female endometriosis, and bladder cancer are additional disorders that can cause comparable symptoms. Interstitial cystitis has no known treatment, and it can be difficult to control. Changes in lifestyle, drugs, or procedures are treatments that may reduce symptoms. Changes in lifestyle may involve quitting smoking and lowering stress levels. Ibuprofen, pentosan polysulfate, or amitriptyline are examples of medications. Surgery, nerve stimulation, or bladder distention are all possible procedures. Long-term antibiotic use and pelvic floor exercises are not advised.

Causes

There is no recognised cause of IC. Nonetheless, a number of theories have been put forth, including the autoimmune hypothesis, the nerve theory, the mast cell theory, the leaky lining theory, the infection theory, and the theory that poisonous substances are produced in the urine. Additional potential etiological factors include those that are neurologic, allergy, genetic, and stress-related. A chemical that prevents the formation of cells in the bladder epithelium may also be present in the urine of people with IC, according to current studies. Then, an infection

might put those people at risk of developing interstitial cystitis. Laboratory studies, probably as a result of their capacity to release histamine, which can lead to pain, swelling, scarring, and disruption of the healing process. According to research, those who have IC have an overgrowth of nerve fibres in their bladders, whereas those who have not been given an interstitial cystitis diagnosis do not. Regardless of the cause, a damaged urothelium, or bladder lining, is a common problem for those with IC. Urinary chemicals may "leak" into adjacent tissues when the surface Glycosaminoglycan (GAG) layer is compromised, leading to discomfort, irritation, and urinary symptoms. Sometimes, treatments administered orally, such as pentosan polysulfate, and treatments injected directly into the bladder *via* a catheter work to repair and rebuild this injured/damaged lining, resulting in a decrease in symptoms. The majority of the available research supports the theory that the symptoms of IC are brought on by a breakdown in the bladder's lining, which allows irritants from urine to enter the bladder. Increased permeability of the submucosal tissues occurs when this glycosaminoglycan layer on the bladder's surface is deficient. With notable differences in GP51 levels between people with and without interstitial cystitis, GP51 has been identified as a potential urine biomarker for interstitial cystitis. The relationship between IC, anxiety, stress, hyper-responsiveness, and panic has been documented in numerous research. Interstitial cystitis may also result from the body's immune system attacking the bladder, according to one theory. Mast cells are typically found in bladder wall biopsies of IC patients. While an allergic reaction is taking place, mast cells bearing histamine packets congregate. The histamine packets assault when the body recognises the bladder wall as a foreign substance. Autoimmune diseases are caused by the body attacking itself. Moreover, interstitial cystitis may be brought on by an unidentified poison or stimulation that sets off an uncontrollable firing of bladder wall nerves. When they fire, they expel compounds known as neuropeptides that set off a chain of events that hurts the bladder wall.

*Corresponding author: Robert Aldere, Email: Alderet99@yahoo.com