

ANALYSIS OF URINE MARKERS IN PATIENTS WITH INTERSTITIAL CYSTITIS/BLADDER PAIN SYNDROME AND CHRONIC BACTERIAL CYSTITIS

Hypothesis / aims of study

Although the pathogenesis of interstitial cystitis/bladder pain syndrome (IC/BPS) remains to be unknown, nonspecific bladder inflammation such as mucosal bleeding after distention (MBAD) and Hunner lesion (HL) is often observed. Thus, to investigate the contributing factors of chronic bladder inflammation in patients with IC/BPS, we measured several urine markers such as cytokines, chemokines and growth factors from patients with MBAD, HL, chronic bacterial cystitis (CBC) and healthy controls.

Study design, materials and methods

Urine was collected from 27 IC/BPS patients with MBAD (14) or HL (13) before hydrodistention, 15 patients diagnosed with CBC and 12 normal healthy volunteers, and the number of leukocytes in the urine was counted using microscopy. In addition, multiplex analyses of 41 cytokines, chemokines and growth factors were performed with a multiple antigen assay (Milliplex MAP Kit) on urine specimens. All participants completed the O'Leary-Sant score including symptom indexes (OSSI) and problem indexes (OSPI), and visual analog scale (VAS) pain score.

Results

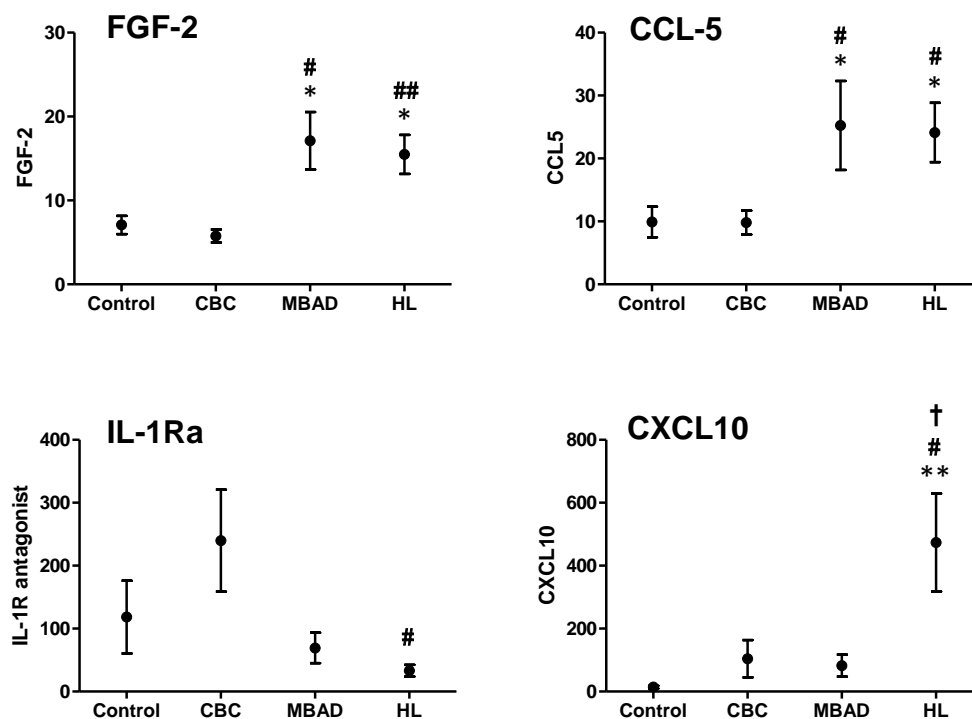
Several markers were significantly increased in MBAD and HL patients compared with CBC and control patients, including fibroblast growth factor-2 (FGF-2) and CCL5 although there was no significant difference in these markers between CBC and control patients. On the other hand, CXCL1, CXCL8 and the number of leukocytes (WBC) were significantly increased in CBC and HL patients compared with control patients whereas there was no significant difference in these markers between MBAD and control patients. In addition, a significant increase in CXCL10 and a significant decrease in interleukin-1 receptor antagonist (IL-1Ra) compared with CBC were seen in patients with HL (Fig. 1). There were significant increases in OSSI of CBC, MBAD and HL patients, and increases in OSPI and VAS score of MBAD and HL patients compared with control patients.

Interpretation of results

Patients with MBAD and HL had increased urine markers associated with fibrosis due to inflammatory responses such as FGF-2 and CCL5, which may be useful to distinguish between IC/BPS patients and CBC patients. In addition, an increase in T-helper type 1 related chemokines such as CXCL10 and a decrease in anti-inflammatory factors such as IL-1Ra may contribute to the pathophysiological basis of IC/BPS with HL. On the other hand, increases in leukocytes related chemokines such as CXCL1, CXCL8 were detected in CBC and HL patients, but not in MBAD patients.

Concluding message

Differential expression of chemokines in IC/BPS and CBC patients suggests that different chronic bladder inflammatory mechanisms are involved in two disease conditions. An increase in CXCL10 and a decrease in IL-1Ra may pathophysiologically be important for the development of IC/BPS with HL.



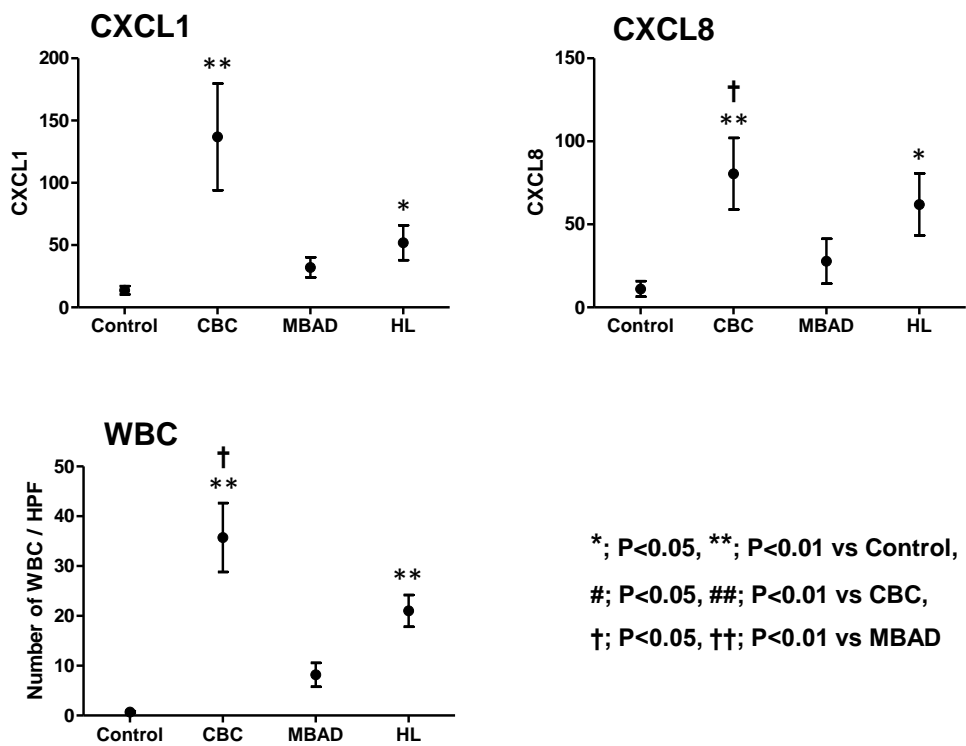


Fig. 1 Comparison of urine markers among patients with CBC, MBAD, HL or controls.

Disclosures

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