

CYTOKINE RESPONSES IN BPS/IC ESSIC TYPE 3C

Hypothesis / aims of study

Bladder Pain Syndrome (BPS), previously denominated Interstitial Cystitis (IC), is a heterogeneous syndrome of unknown etiology. BPS/IC Type 3C (classic IC) is characterized by Hunner lesions and characteristic inflammatory infiltrates in the bladder wall, whereas non-Hunner BPS/IC (nonulcer IC) has no circumscript lesions and no inflammatory changes. We have previously shown large amounts of nitric oxide (NO) evaporation from the bladder wall in patients with BPS Type 3C compared to undetectable NO in non-Hunner BPS bladders or healthy controls. However, the factors, responsible for the increased NO production are not fully known. The aim of the present study was to analyse the local cytokine response in relation to inducible Nitric Oxide Synthase (iNOS) expression and mast cell infiltration in BPS/IC ESSIC Type 3C

Study design, materials and methods

Cold cup biopsies from seven BPS Type 3C patients and six healthy controls were analysed for the mRNA expression of IL-4, IL-6, IL-10, IL-17A, iNOS, TNF- α , TGF- β and IFN- γ by real time PCR. The protein expression of IL-17 was determined with immunohistochemistry. Mast cell tryptase labelling was used to evaluate the appearance and count of mast cells.

Results

The mRNA levels of IL-6, IL-10, IL-17A and iNOS were significantly higher in BPS Type 3C patients than controls, but TNF- α , TGF- β and IFN- γ did not differ. Increased numbers of mast cells were found in BPS Type 3C patients, but not in controls. In addition, the protein expression of IL-17 was also up-regulated and localised to inflammatory cells and urothelium.

Interpretation of results

The local cytokine responses may contribute to increased iNOS expression and NO production in BPS/IC ESSIC Type 3C patients. Other factors may also be responsible for the stimulation of iNOS, but IL-17 seems to be an important player in the actual inflammatory process.

Concluding message

Our results support the notion that activation of iNOS, with high production of NO, is an important mechanism behind the inflammation seen in BPS/IC Type 3C.

Disclosures

Funding: Anna-Lisa and Bror Björnssons Research Foundation, Märtha and Gustaf Ågrens Research Foundation and Sahlgrenska University Hospital project number ALF 7582. **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Regional Ethical Review Board, University of Gothenburg, Sweden. **Helsinki:** Yes **Informed Consent:** Yes