

Author(s) HA Al Hadithi, DG Tincello, G Vince, Adams EJ, Richmond DH
Institution, city, country. University of Liverpool Department of Obstetrics & Gynaecology, Liverpool, UK Urodynamic Department, Liverpool Womens' Hospital, Liverpool, UK
Title (type in CAPITAL LETTERS, leave one blank line before the text) LEUCOCYTE SUBPOPULATIONS IN BLADDER BIOPSIES FROM WOMEN WITH INTERSTITIAL CYSTITIS AND SENSORY URGENCY: EVIDENCE FOR A COMMON PATHOLOGY?
<u>Aims of study</u> To examine and count leucocyte subpopulations in bladder biopsies from patients with sensory bladder disorders and to identify correlations between these and the clinical diagnosis
<u>Methods</u> Cold cup bladder biopsies were taken at cystoscopy and processed for immunohistochemistry in paraffin blocks. 5µm sections were cut and stained using diaminobenzidine tetrahydrochloride to develop the stains. Monoclonal antibodies against mast cells (mast cell tryptase), common leucocyte antigen (CD45), B cells (CD 20), T cells (CD 3) and cytotoxic T cells (CD 8). Positive staining cells were counted in three high power fields and the mean count per field calculated. Patients were classified as having interstitial cystitis (IC) by history, cystoscopic and histopathological findings according to NIDDK criteria. Patients with a history compatible with IC but with normal cystoscopic appearances were labelled as sensory urgency (SU). Patients undergoing Burch colposuspension were biopsied as normal controls. Counts were compared between groups using Mann Whitney U test or Kruskal Wallis test. Significance was set at 5%. Local ethical committee approval was obtained. Counts are expressed as median (range).
<u>Results</u> Biopsies were taken from 74 patients: 41 (56%) with IC, 12 (16%) with sensory urgency and 21 (28%) controls. Mucosal mast cells counts were 10.1 (1.7-19.6) for controls, 9.5 (5.1-22.3) for SU patients and 11.2 (1.6-23.2) for IC patients (not significant). Detrusor muscle mast cell counts were 1.3 (0-9.6) for controls, 2.4 (0-8.6) for SU and 3.0 (0-7.5) for IC patients (p=0.07). Mucosal CD 45 counts were 28.0 (6.25-68.6) for controls, 25.2 (2.5-46.7) for SU and 32.0 (9.0-113.0) for IC patients (not significant). Mucosal CD 20 counts were 0.7 (0-38.0) for controls, 0.8 (0-7.3) for SU and 2.3 (0-42.7) for IC (not significant). Mucosal CD3 counts were 2.7 (0-61.3) for controls, 2.5 (0-37.7) for SU and 2.0 (0-63.7) for IC (not significant). Mucosal CD 8 counts were 9.0 (0.3-18.0) for controls, 14.7 (5.3-33.3) for SU and 14.7 (0-47.3) for IC (p=0.05).
<u>Conclusions</u> Lymphocytic infiltrate is reported to be a characteristic finding of IC. These are the first data examining leucocyte numbers in normal bladders and in those women with sensory urgency, which is thought by some to be an early manifestation of IC on the basis of mast cells counts. Our data confirm that detrusor muscle mast cell counts are elevated in IC and show that they are also elevated in SU, confirming the theory that the two conditions share a similar aetiology. Total leucocyte counts (CD 45) were the same in all three groups suggesting the presence of an inflammatory infiltrate alone cannot be used for diagnostic purposes. The numbers of cytotoxic T cells (CD 8) was significantly higher in both IC and SU patients compared to controls. These data support the work of others that increased cytotoxic T cells are present in IC and provide further evidence to classify SU as an early manifestation of IC.