

## THE EXPRESSIONS OF MULTIPLE ANGIOGENIC FACTORS IN BLADDER EPITHELIUM IN PATIENTS WITH REFRACTORY OVERACTIVE BLADDER

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**INTRODUCTION AND OBJECTIVE:** Overactive bladder (OAB) is a symptom-based syndrome with urgency and frequency. Recent studies demonstrated that the bladder epithelium might regulate the sensory neurons and play an important role in the pathogenesis of OAB. On the other hand, the epithelial abnormality including GAG deficiency is one of the important pathological aspect of interstitial cystitis. In this study, we evaluated the expressions of multiple angiogenic growth factors in the epithelium in refractory OAB cases.

**METHODS:** A total of 20 female refractory OAB patients with an average age of 49.6 years (range 18 to 72) were included in this study. Because they showed no response to 6-month treatment with anticholinergic agents, hydrodistentions were performed. The criteria of OAB based on symptoms including urgency with more than two times weekly and/or frequency with more than 10 voids daily. Bladder specimens were obtained by cold cup biopsy prior to hydrodistentions. Immunohistochemical staining with PDECGF, FGF, VEGF, HGF and CD44 were evaluated in each section. In addition, the quantitative measurement of PDECGF was performed with ELIZA.

**RESULTS:** According to the cystoscopic findings, 14 cases (70%) showed typical glomerulations, 3 (15%) showed ulcer-like lesions and 3 (15%) had normal mucosa. Overall stain-positive rate on epithelium with PDECGF, FGF, VEGF, HGF and CD44 was 90%, 85%, 80%, 80% and 60%, respectively, after excluding the samples with denuded epithelium. In ELIZA study of mean PDECGF expression  $\pm$  SD (U/mg protein) was  $18.9 \pm 10.1$  in patients with glomerulations (n=14),  $64.3 \pm 35.0$  in patients with ulcer-like lesions (n=3) and  $7.1 \pm 0.3$  in patients with normal mucosa (n=3).

**CONCLUSIONS:** These results indicate that OAB and interstitial cystitis are often overlapping syndromes and that refractory OAB patients might have the clinical condition similar to interstitial cystitis. Moreover, the epithelial expression of angiogenic growth factors might play an important role in the pathophysiology of refractory OAB and interstitial cystitis.

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