

EXPRESSION OF URINARY NERVE GROWTH FACTOR IN DIFFERENT LOWER URINARY TRACT CONDITIONS

Hypothesis / aims of study

Lower urinary tract symptoms (LUTS) are the key symptoms of overactive Bladder (OAB). However, these symptoms are also seen in acute cystitis or other urinary tract infections or urinary tract pathologic conditions. Nerve growth factor (NGF) is known to exist in intravesical urothelium and suburothelium. And it is known that related to detrusor overactivity, bladder sensation, detrusor contraction and other lower urinary tract function. Therefore, we aimed to investigate the urinary NGF levels in both OAB and cystitis condition and the significance of its role as a marker for a certain disease.

Study design, materials and methods

Urine samples from 78 female patients were collected; 26 healthy control patients, 27 acute cystitis patients and 25 OAB patients. Mean age of each group of patients are; control group 47.2±7.1 (37~66) years old, acute cystitis group 58.2±22.2 (26~86) years old, OAB group 48.3±15.9(28~75) years old, respectively. Urinary NGF levels were measured by ELISA in control, acute cystitis, pre-treatment OAB, and post-treatment OAB groups. Patients in post-treatment OAB group were same patients of pre-treatment OAB group with repeated urine sampling in 2 months of anticholinergic medications.

Results

Mean urinary NGF level in pre-treatment OAB group was 1.57±0.25ng/ml and it's expression of NGF was significantly decreased in post-treatment OAB group (1.29±0.23ng/ml, p=0.0002 by paired T-test). Mean urinary NGF level in acute cystitis group was 1.55±0.43ng/ml, which was significantly elevated compared with the control group (0.59±0.23ng/ml, p<0.05, by ANOVA). There were significant differences among the four groups (pre-treatment OAB, post-treatment OAB, acute cystitis, and control groups) with p value <0.0001 (by ANOVA).

Interpretation of results

In this study, we confirmed that the urinary NGF levels are elevated in both acute cystitis and OAB conditions. In OAB, urinary NGF level was significantly decreased with 2 months of anticholinergic treatment although the level of expression was still higher when compared with healthy control women.

Concluding message

This study suggests that storage symptoms of LUTS closely related to bladder sensation may have correlation with increased urinary NGF. And urinary NGF expression decreases with anticholinergic medications resulting in clinically showing symptomatic improvement.

Disclosures

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