

URINE NERVE GROWTH FACTOR IN PATIENTS WITH IDIOPATHIC DETRUSOR OVERACTIVITY AND IN PATIENTS WITH OVERACTIVE BLADDER WITHOUT DETRUSOR OVERACTIVITY

Hypothesis / aims of study

To evaluate the role of urine nerve growth factor (NGF) as a biomarker of detrusor overactivity (DO) in patients with overactive bladder (OAB) as a clinical syndrome.

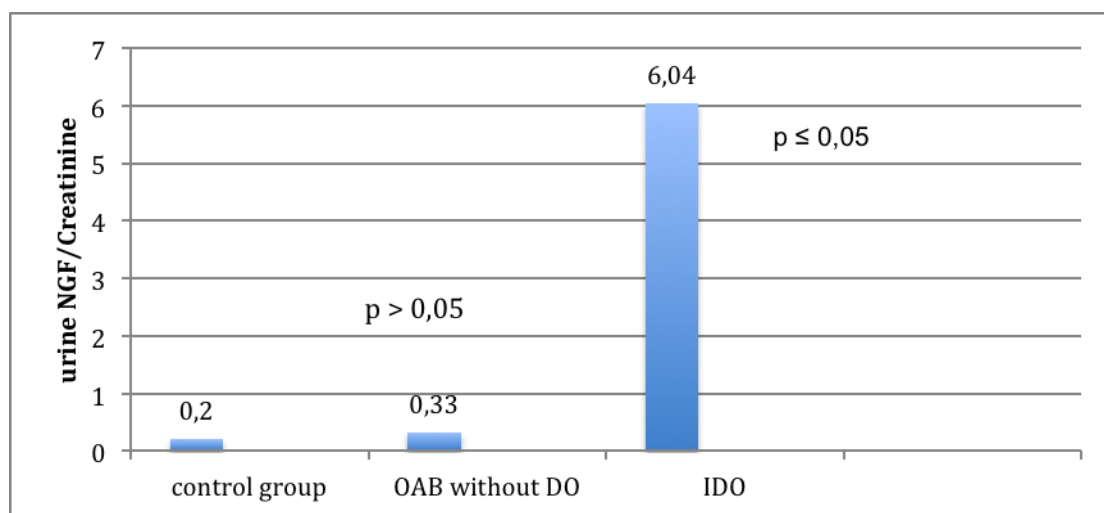
Study design, materials and methods

21 patient with idiopathic DO (IDO) and 18 patients with OAB without DO were enrolled. All of them had OAB symptoms: urgency, frequency and urgent urinary incontinence. During the examination all patients were performed the urodynamic study. 11 volunteers without lower urinary tract symptoms were also enrolled in the control group.

For measurement of urinary NGF level we used the ELISA method. In our studies, we use undiluted voiding urine that is placed on ice immediately and centrifuged at 3000 g at 4°C for 10 minutes. The supernatant is separated into aliquots in 1.5-mL tubes and preserved in a 80°C freezer. At the same time, 3 mL of urine is taken to measure urinary creatinine level. We determine urinary NGF concentration using specific ELISA kit that has a minimum sensitivity of 7.8 pg/mL. The amount of NGF that falls below the detection limits of NGF assay are extracted from an NGF standard curve. The total urinary NGF level is further normalized by the concentration of urinary creatinine level (NGF/creatinine level). The NGF/creatinine level is compared among all groups.

Results

The lowest level of urine NGF/creatinine were measured in control patients - $0,2 \pm 0,06$. In patients with OAB without DO the figures were a bit higher but not statistically significant - $0,33 \pm 0,06$ ($p > 0,05$). The great increase of urine NGF/creatinine were observed in IDO group - $6,04 \pm 0,9$ ($p \leq 0,05$).



Interpretation of results

Our results shows that the levels of urine NGF/creatinine are quite low in patients who haven't DO – control group and patients with OAB without DO. The difference is small and it's without statistical significance. But the patients with OAB without DO have urgent and frequent voiding. The group of IDO also has OAB symptoms as in OAB without DO patients but the DO is present. The level of urine NGF/creatinine is much higher than in two others groups. And this difference is statistically significant.

Concluding message

The urine NGF/creatinine can be a new perspective and adequate biomarker of presence/absence DO in OAB patients. But it is necessary to held new clinical and experimental trials to evaluate urine NGF as a biomarker in different functional disorders of the urination process. We also can hope that it can be useful in complete understanding of the mechanisms of urgency in the future.

Disclosures

Funding: Patients' money **Clinical Trial:** Yes **Registration Number:** Registry committee of Russian National Research Medical University named after N.I. Pirogov. Registration number 15/014 **RCT:** No **Subjects:** HUMAN **Ethics Committee:** Local ethics committee of Russian National Research Medical University named after N.I. Pirogov. Registration number 15/014 **Helsinki:** Yes **Informed Consent:** Yes