

AUTONOMIC NERVOUS SYSTEM DYSFUNCTION IN FEMALES WITH IDOPATHIC OVERACTIVE BLADDER SYNDROME: PRELIMINARY RESULTS

Hypothesis / aims of study

As known, mainly autonomic nervous system (ANS) manages micturition and continence. In this prospective, controlled study, we aimed to investigate possible ANS dysfunction in patients with idiopathic overactive bladder (OAB) syndrome using autonomic cardiovascular tests and sympathetic skin response.

Study design, materials and methods

Patients admitted to our outpatient clinic and diagnosed as OAB were enrolled in this study after informed consents were taken. Volunteers were recruited from health employees of our hospital. Ethics Committee and Review Board of our institution approved the study. All participants provided written informed consent. Exclusion criteria were the history of pathology that can cause ANS dysfunction (neurological disease, DM, hypertension) and the presence of any condition that can cause urgency (urinary infection, stone disease, bladder malignancy). All patients' demographic data and medical history were recorded. All participants were asked to fill Turkish validated OAB-SF. All patients and controls underwent global and widely used ANS cardiovascular (CV) tests and electromyographic studies (Medelec [Premier plus/London] for sympathetic skin response (SSR) test (hand and foot) were performed by the same author (CT). We used hand grip exercise, cold pressor test and R-R interval variability (rest and hyperventilation) as ANS-CV test. All patients underwent PVR measurement after a voluntary urination. All statistical analysis were performed with SPSS 17 programme.

Table 1. Autonomic Nervous System tests

Test	Autonomic Pathway	Explication of results
Cold Pressor	Sympathetic	If the difference between systolic pressures of 1st minutes of immersion and rest is >10 mmHg; test is positive
Hand Grip	Sympathetic	If the difference between diastolic pressures of 3rd minutes of handgrip and rest is >10 mmHg; test is positive
R-R interval variability to deep breathing	Parasympathetic	Values were evaluated as reciprocal (patient and healthy volunteers) and also according to EMG department's norm values
Sympathetic skin response	Sympathetic	(-) or (+)

Results

Between December 2015 and March 2016, 23 patients and 22 healthy controls (mean ages; 53,6 and 51,3 respectively, $p>0.05$) were enrolled. Mean OAB-SF scores of patient and control groups were 22 and 3 respectively ($p<0,05$). In OAB group, three patients could not complete hand grip test, so hand grip results of OAB group consist of 20 patients. Sixteen patients and eleven controls were in menopause ($p>0,05$). Also there was no difference between PVR volumes of both groups. Maximum PVR volume in patients and controls were 70 ml and 30 ml, respectively.

Table 2: Group characteristics

	Age	Menopause	OAB-SF	PVR(ml)
OAB	53,6	16/23	22	10,8
Controls	51,3	11/22	3	7,7

Cold pressor test was positive in 39% of patients and 22% of controls, hand grip test was positive in 60% of the patients and 41% of the controls but but these differences were not statistically significant. Sympathetic skin response test were negative in two patients and one control for hand and regarding foot, one patient was negative. All controls were positive. R-R interval variations as ratio (hyperventilation/rest) were the same for both groups. Also there was no difference for SSR test for both hand and foot.

Table 3:Results of Autonomic Nervous System tests

Test	OAB group	Control	p
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Cold Pressor Positive Test BP change	9/23 11,52	5/22 12,72	p>0.05 p>0.05
Hand Grip Positive Test BP change	12/20 11,30	9/22 9,18	p>0.05 p>0.05
RR interval variability Positive Test according to normal values.	12/23	16/22	p>0,05
RR interval change (msn) (hyperventilation-rest)	13,52	13,53	p>0,05
Hand SSR(-) Foot SSR(-)	2/23 1/23	1/22 0/22	

Interpretation of results

In our study there are differences between two test of groups however these differences were not statistically significant probably because of the small number of patient and control groups. In this abstract, we tried to report the initial findings of an ongoing trial so the results may be significant when all the patient and control group recruitment is over. In one recent study, significant differences were found between patient and control groups(1) however the negative results of ANS findings in all participants in the control group is questionable.

Concluding message

Although there are initial studies showing the role of autonomic dysfunction in patients with OAB, we could not demonstrate a significant contribution of ANS dysfunction in patients with OAB. New studies with larger number of patients and controls are needed to find out any ANS dysfunction in OAB patients. Also new tests and methods may be used to analyse ANS dysfunction.

References

1. Hubeaux K, Deffieux X, Raibaut P, Le Breton F, Jousse M, Amarenco G. Evidence for autonomic nervous system dysfunction in females with idiopathic overactive bladder syndrome. *Neurourol Urodyn*. 2011Nov;30(8):1467-72.

Disclosures

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