

CHANGE OF AUTONOMIC NERVOUS ACTIVITY AFTER TREATMENT WITH ALPHA-BLOCKER IN MEN WITH LOWER URINARY TRACT SYMPTOMS

Hypothesis / aims of study

Some previous studies suggested that the associations between lower urinary tract symptoms (LUTS) and autonomic nervous function (1). The heart rate variability (HRV) is a non-invasive tool for measuring autonomic nervous activity (2) and low frequency / high frequency (LF/HF) ratio is known to be a marker that mirrors the balance of sympathetic and parasympathetic nervous activities (3). The purpose of this study is to find out change of autonomic nervous activity after treatment.

Study design, materials and methods

95 men who had LUTS (International prostate symptom score (IPSS) over 8) were included in study. We divided them into two groups based on LF/HF ratio 1.6 after initial measurement of HRV. After treatment with alfuzosin 10mg once a day for 3 months, we evaluated their IPSS, uroflowmetry and HRV, compared them with the values of baseline measurements.

Results

54 men were assigned to low LF/HF group (group A) and 41 men to high LF/HF group (group B). IPSS, IPSS-voiding subscore, IPSS-storage subscore and maximal uroflow (Qmax) were not different between groups at baseline and 3-month. While baseline LF/HF ratio of group A was increased from 0.89 ± 0.11 to 1.80 ± 1.80 after treatment, it was changed from 3.93 ± 5.47 to 1.79 ± 1.15 in group B.

Table 1. Change of mean total IPSS, IPSS subscores, Qmax and LF/HF ratio after treatment with alfuzosin 10 mg for 3months (Group A: LF/HF \leq 1.6, Group B: $>$ 1.6; *: difference from baseline, $p < 0.05$; †: difference between groups, $p < 0.05$)

	Group A (N=54)		Group B (N=41)	
	Baseline	12 week	Baseline	12 week
Total IPSS	15.7 \pm 5.62	10.9 \pm 6.13*	15.8 \pm 5.68	10.1 \pm 6.11*
IPSS-voiding subscore	9.7 \pm 4.20	6.4 \pm 4.11*	9.9 \pm 4.49	6.0 \pm 4.35*
IPSS-storage subscore	6.1 \pm 2.93	4.6 \pm 2.75*	5.9 \pm 2.90	4.1 \pm 2.56*
Qmax (mL/sec)	10.3 \pm 4.17	15.7 \pm 8.00*	9.31 \pm 3.99	14.0 \pm 7.94*
LF/HF [†]	0.89 \pm 0.407	1.80 \pm 1.804*	3.93 \pm 5.471	1.79 \pm 1.153*

Interpretation of results

The efficacies of alfuzosin were clear in both groups. The mean LF/HF ratio in subjects who had high LF/HF ratio at baseline was decreased after treatment and in men with low LF/HF, it was increased. The ratios of LF/HF in each group were converged to about 1.79, near value in healthy people.

Concluding message

This study showed how the balance of autonomic nervous system is important to improve LUTS and related to treatment efficacy with alpha-blocker. This finding is a clue that imbalance of autonomic nervous system may be a causative factor to bring out LUTS and influence on the efficacy of treatment.

References

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Disclosures

Funding: This study was initiated with approval of the Institutional Review Board (MED-MDB-12-273). **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** This study was approved by Institutional Review Board of Ajou University Hospital (IRB No. MED-SUR-10-338). **Helsinki:** Yes **Informed Consent:** Yes