

THE DIFFERENCE OF LOWER URINARY TRACT SYMPTOMS BETWEEN SYMPATHETIC HYPERACTIVE AND HYPOACTIVE MEN

Hypothesis / aims of study

Heart rate variability (HRV) is a tool to measure autonomic nervous function(1), however there is no evidence that it is able to define sympathetic hyperactivity in men with LUTS. We suppose that LUTS is different between sympathetic hyperactive and hypoactive patients(2,3). Therefore we measured their HRV, divided LUTS patients into two groups, sympathetic hyperactive group and sympathetic hypoactive group according to the LF/HF ratio, and then compared their clinical situations.

Study design, materials and methods

39 symptomatic LUTS patients (IPSS>8) and 48 healthy volunteers were enrolled. All subjects had no disease which can affect autonomic nervous system, such as diabetes, hypertension and so on. Electrocardiographic signals were obtained from subjects in resting state and calculated the HRV indices with spectral analyses. We divided LUTS patients into two groups by LF/HF ratio 1.19 which was median value in healthy volunteer and compared the difference of clinical characteristics, IPSS, PSA and TRUS results. The parameters were compared by independent sample t-test using SPSS version 12.

Results

There was no difference in age, serum PSA and volume of prostate. The comparative results of parameters of HRV between groups (Mean ± Standard Error) are in the table 1.

Table 1. The results of each HRV parameters in Group A, B and Control (mean±SD)

	IPSS 1	IPSS 2	IPSS 3	IPSS 4	IPSS 5	IPSS 6	IPSS 7*	IPSS QoL
Group A (N=18)	2.9±2.0	2.8±1.8	3.0± 1.9	2.1± 2.1	4.1± 1.4	3.2± 1.5	2.9±1.2	4.2±1.2
Group B (N=21)	2.2±1.9	2.4±1.7	2.5± 1.9	2.1± 1.9	3.8± 1.3	2.2± 1.6	2.1±1.0	3.9±0.8

(Group A: patients with LF/HF below 1.19, Group B: patients with LF/HF over 1.19, *, $p<0.05$, compared with control group)

Interpretation of results

As most investigators believe that LF and HF represent sympathetic and parasympathetic nervous system activity, respectively, our results may suggest that LUTS patients with relatively sympathetic hypoactivity suffer from nocturia more than those with sympathetic hyperactivity.

Concluding message

We suggest that the imbalance of the autonomic nervous system activity may be a factor that evokes varieties of symptoms in men with LUTS.

References

1. Task Force of the European Society of Cardiology and the North American Society of Pacing and Electrophysiology. Heart rate variability. Standard of measurement, physiological interpretation and clinical use. *Circulation* 1996; 93: 1043–65
2. Choi JB, Kim YB, Kim BT, Kim YS. Analysis of heart rate variability in female patients with overactive bladder. *Urology* 2005; 65(6): 1109-12
3. Kim JC, Joo KJ, Kim JT, Choi JB, Cho DS, Won YY. Alteration of autonomic function in female urinary incontinence. *Int Neurourol J* 2010;14(4):232-7

Disclosures

Funding: None **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** Ajou University Hospital IRB AJIRB-CRO-07-172 **Helsinki:** Yes **Informed Consent:** No