

INCREASED PULSE-WAV VELOCITY AS A RISK FACTOR FOR LOWER URINARY TRACT SYMPTOMS IN MEN

Hypothesis / aims of study

An age-related impairment of blood supply might cause chronic ischemia and thus be a contributing factor in the development of benign prostatic hyperplasia and voiding dysfunction^{1,2}. Vascular risk factors frequently coexist with lower urinary tract symptoms (LUTS), suggesting that atherosclerosis and endothelial dysfunction may play a major role in the development of LUTS. Arterial stiffness owing to decreased arterial compliance is one of a powerful indicator of atherosclerosis. This study investigated the association of arterial stiffness and LUTS in men.

Study design, materials and methods

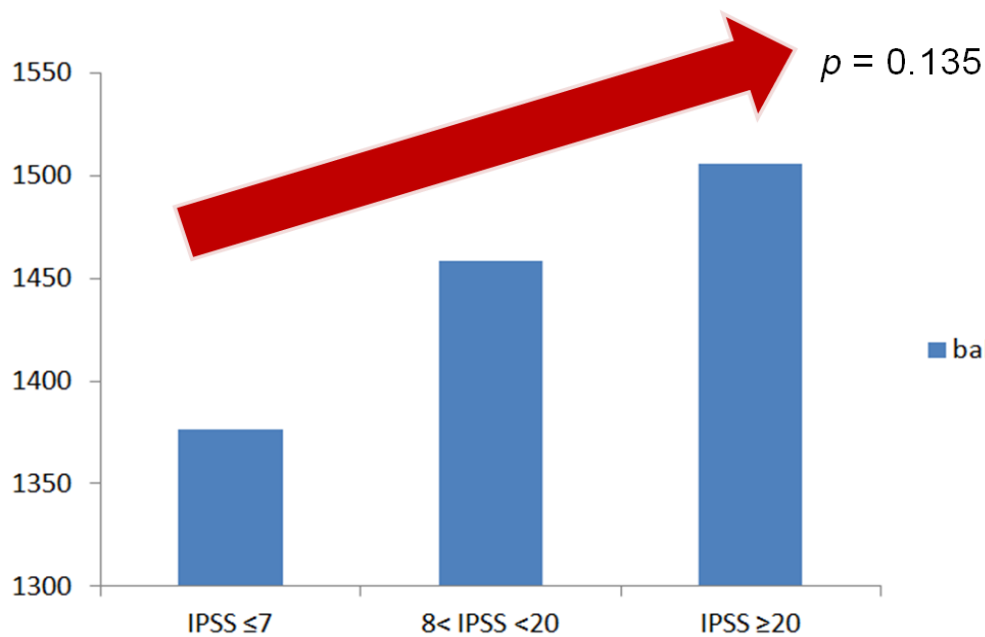
We retrospectively reviewed and analyzed the medical records of patients ≥ 40 years old who received health screening program including prostate check-up at the Health Promotion Center. We excluded the patients with a history of taking a medication for LUTS (including α -blockers, 5- α -reductase inhibitors or anticholinergics) or other urological condition (cancer, urologic surgery, neurogenic bladder, urinary tract infection). For prostate check-up in our institute, the patients were assessed by serum PSA, prostate volume measured via transrectal ultrasound and International Prostate Symptom Score (IPSS). They were also assessed for risk factors of atherosclerosis such as serum lipid profile and free testosterone. The arterial stiffness was measured using Brachial-ankle pulse wave velocity (baPWV). We compared the risk factors between the men without and with LUTS. LUTS was defined as IPSS greater than 7.

Table 1. Patient demographics and characteristics

Variables	LUTS*		p-value
	No (n=57)	Yes (n=48)	
Age, yr, mean \pm SD	52.60 \pm 5.94	54.33 \pm 8.24	0.120
Body mass index, Kg/m ² , mean \pm SD	24.92 \pm 2.44	24.83 \pm 2.33	0.843
Waist circumference, cm, mean \pm SD	86.91 \pm 10.61	88.66 \pm 7.12	0.321
Total Cholesterol, mg/dL, mean \pm SD	201.02 \pm 34.11	202.96 \pm 35.31	0.776
LDL cholesterol, mg/dL, mean \pm SD	124.49 \pm 31.90	131.13 \pm 31.00	0.284
Triglyceride, mg/dL, mean \pm SD	162.74 \pm 291.57	142.75 \pm 92.64	0.626
Homocysteine, μ mol/L, mean \pm SD	12.53 \pm 3.65	13.41 \pm 4.51	0.278
C-reactive protein, mg/dL, mean \pm SD	0.18 \pm 0.27	0.12 \pm 1.24	0.199
Insulin, IU/mL, mean \pm SD	5.43 \pm 3.85	5.82 \pm 5.03	0.661
Cystatin C, mg/dL, mean \pm SD	0.81 \pm 0.12	0.85 \pm 0.16	0.178
Free testosterone, pg/dL	8.93 \pm 3.68	9.62 \pm 5.10	0.452
PSA, ng/mL, mean \pm SD	1.21 \pm 0.73	1.27 \pm 0.76	0.673
Total prostate volume, mL, mean \pm SD	28.15 \pm 6.61	27.92 \pm 7.47	0.867
Prostate transitional volume, mL, mean \pm SD	11.90 \pm 4.45	12.50 \pm 4.26	0.643
BaPWV, cm/s, mean \pm SD	1376.47 \pm 170.80	1468.44 \pm 303.57	0.045

* LUTS: IPSS greater than 7

Figure 1. The change of BaPWV according to severity of LUTS



Results

We enrolled 57 without LUTS and 48 with LUTS. There were no significant differences in age, prostate volume, PSA, body mass index and serum lipid profile between two groups. The baPWV value was 1468.44±303.57cm/s with LUTS group and 1376.47±170.80cm/s without LUTS group, which was statistically significant ($p = 0.045$) (Table 1). The baPWV value increased as severity of LUTS, which was not statistically significant (Figure 1).

Interpretation of results

The present study found the association of baPWV and LUTS in men.

Concluding message

The present study found the association of baPWV and LUTS in men. Atherosclerosis-related vascular risk factors are also known to be related to LUTS and both disorders may have pathogenic interactions.

References

1. Berger AP. et al. BJU Int 2006;98:1038-42
2. Azadzi KM et al. J Urol 1999;161:1626-35

Disclosures

Funding: none **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** retrospective study **Helsinki:** Yes **Informed Consent:** No