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ANTI-MUSCARINICS CAN IMPROVE OAB-INDUCED HYPERTENSION

Hypothesis / aims of study

It is reported that hypertension is related with overactive bladder (OAB). Detrusor overactivity (DO) in OAB patients is induced through bladder afferent C fibers. The C fiber-induced DO also occurs in patients with spinal cord injury upper than T6 level, which causes severe hypertension by autonomic dysreflexia. We hypothesized that OAB is not only the result of hypertension but also one of the causes of hypertension. The aim of study is to demonstrate whether DO induces hypertension.

Study design, materials and methods

Study 1: Blood pressure (BP) was continuously monitored during urodynamic study in 10 male outpatients. Study 2: A frequency volume chart and BP were recorded for 24 hours in 5 male inpatients. BP was measured by ambulatory blood pressure monitoring. Study 3: Nocturnal urinary frequency and BP for 24 hours were checked before and 2 to 4 weeks after administration of an anti-muscarinic agent, imidafenacin 0.2 mg/day, in 13 untreated female outpatients. All of them had suffered OAB and nocturia, having normal blood pressure or hypertension grade 1 without treatment. In every study OAB Symptom Score (OABSS) was investigated in all subjects.

Results

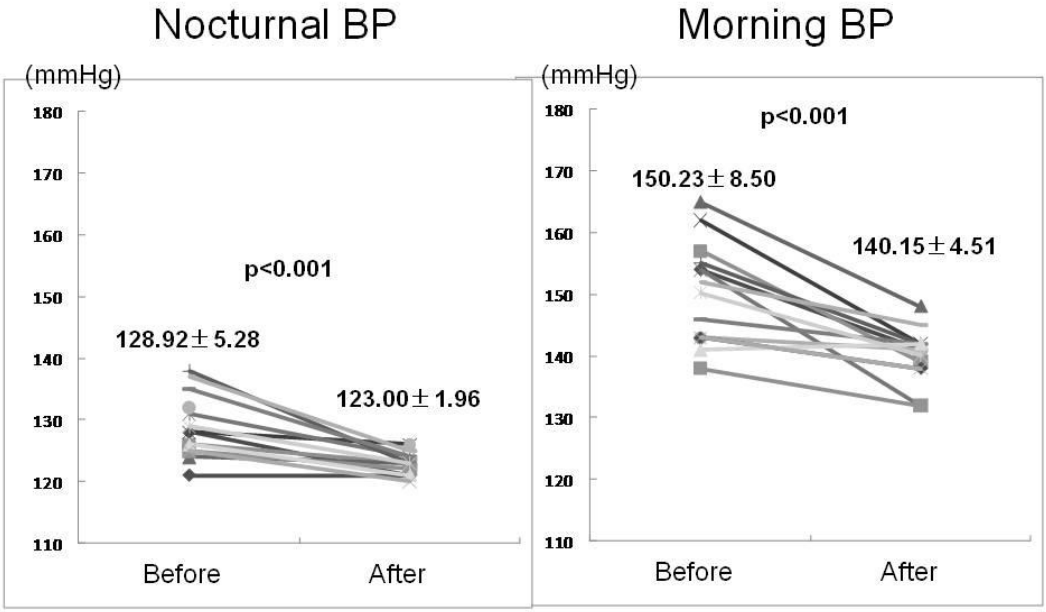
Study 1: DO occurred in 7 of 10 patients. The systolic pressure (sBP) significantly increased together with DO (□29.4 ± 4.0 mmHg). OABSS in patients with and without DO was 7.7 ± 0.9 and 6.0 ± 2.9, respectively. Study 2: sBP together with urgency or urge was significantly higher than that in filling phase in both patient groups with OAB (n = 2, OABSS 11.5 ± 1.5; 170.5 ± 9.6 vs. 129.4 ± 3.0 mmHg, p < 0.0001) and those without OAB (n = 3, OABSS 2.3 ± 0.3; sBP: 122.7 ± 2.8 vs. 116.5 ± 1.9 mmHg, p = 0.045). The difference was more in patients with OAB. Study 3: The administration of imidafenacin significantly decreased nocturnal frequency (2.85 ± 0.69 to 1.77 ± 0.60, p < 0.001) and OABSS (8.1±1.1 to 4.2±0.9, p <0.0001). Imidafenacin did not affect diurnal BP, but significantly decreased 24-hr BP (134.1 ± 5.72 to 130.0 ± 2.97 mmHg, p = 0.004), nocturnal BP (128.9 ± 5.28 to 123.0 ± 1.96 mmHg, p < 0.001) and morning BP (150.2 ± 8.50 to 140.2 ± 4.51 mmHg, p < 0.001) (Fig.).

Interpretation of results

It is suggested that OAB with DO causes hypertension. An anti-muscarinic agent suppressed urgency. In addition, it improved early-morning hypertension in patients with OAB.

Concluding message

.OAB is not only a QOL disease but also a circulation disease.



Specify source of funding or grant	**None**
Is this a clinical trial?	**Yes**

Is this study registered in a public clinical trials registry?	**No**
Is this a Randomised Controlled Trial (RCT)?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**The ethics comittee of Nara Medical University**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**