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Authors: Atsushi Sone, Keijirou Shuto, Kenji Shirotani, Yo Tokunaga, Hiromichi Kiuchi, Masaaki Morioka, Hiroyoshi Tanaka.
Institution: Department of Urology, Kawasaki Medical School, Kurashiki, Japan
Title: A STUDY OF VARIOUS a1-BLOCKERS IN THE TREATMENT OF THE MICTURITION DISTURBANCE ASSOCIATED WITH BENIGN PROSTATE HYPERPLASIA.

Aim of study

The usefulness of various α1-blockers for the treatment of micturition disturbance associated with benign prostatic hyperplasia **(**BPH) was examined using subjective symptoms (obstructive symptoms and irritative symptoms) and objective findings (uroflowmetry and postvoid residual urine (PVR)). Safety was evaluated through an examination of changes in blood pressure and circulatory system symptoms.

Subjects

Study participants were male patients with BPH who had visited the urology departments of Kawasaki Medical School and related medical institutions between September 1999 to February 2001, and met the following criteria: 1) prostate volume 20 cm^3, 2) no history of disease in the nervous system related to micturition disturbance and no neurology findings, and 3) possessed at least one of the following: $\geq$ 10 points out of 40 of a micturition disturbance subjective symptom score [we used as the Lower Urinary Tract Symptom Score (LUTSS) which is a slightly modified version of the International Prostate Symptom Score system such that the obstructive symptoms and irritative symptoms are each allocated a total of 20 possible points each for a total possible score of 40 points], Q_{max} of $\leq$ 15.0 mL/sec, or PVR of $\geq$ 50 mL. A total of 85 patients with a mean age of 70.3 years old (51 to 85 years old) and a mean prostatic mass of 39.1 cm^3 (20 to 108 cm^3) were studied.

Methods

Patients were divided into 3 groups: tamsulosin group (0.2 mg/day, once daily), naftopidil group (50 mg/day, once daily), and terazosin group (2 mg/day, twice daily). The patients were evaluated before administration and post-administration at 2 weeks, 4 weeks, and 6 to 8 weeks. The drugs were assessed using 1) LUTSS (Total score, Obstructive score and Irritative score), 2) QOL index, 3) UFM (Q_{max}, Q_{ave} and PVR), 4) blood pressure (measured in a sitting position), and 5) adverse reactions.

Results

1) LUTSS: Obstructive symptoms (20 points maximum) showed rather high scores of 9.2 to 9.6 points in all groups before administration, which then significantly decreased immediately after drug administration and kept decreasing consistently after week 2, with the scores reaching 2.6 to 4.0 points. Irritative symptoms (20 points maximum) indicated rather high scores of 8.3 to 8.8 points in all groups before administration, which then decreased immediately after treatment. However, a larger score decrease was observed in the naftopidil group compared with the other two groups (8.3 $\rightarrow$ 4.8 $\rightarrow$ 2.9 $\rightarrow$ 2.8 points), without showing a significant difference in irritative symptoms.
2) QOL index (6 points maximum) of 4.2 to 4.6 points was observed in all groups before administration, which decreased with some variation to 1.5 to 3.0 points after administration, with no significant difference among the 3 groups.
3) Q_{max} values varied among the 3 groups before administration: 7.3 mL/sec for the tamsulosin group, 10.0 mL/sec for the naftopidil group, and 9.0 mL/sec for the terazosin group, but the values were similar after administration at 11.7 mL/sec, 11.4 mL/sec, and 11.7 mL/sec, respectively. The PVR shifted from 100 to 26 mL in the tamsulosin group, 59 to 57 mL in the naftopidil group, and 87 to 49 mL in the terazosin group. A slightly less favorable value was observed in the tamsulosin group than those of the other two groups.
4) Though blood pressure in the terazosin group was estimated to decrease to the lowest level, no significant difference was found among the tamsulosin group (130/78 to 128/73 mmHg), the naftopidil group (138/80 to 133/80 mmHg), and the terazosin group (140/84 to 130/78 mmHg).
5)Three patients (13%) in the terazosin group reported adverse reactions that resulted in discontinuation of the drug. Of these 3 patients, one patient reported a dull headache and the other reported dizziness, which are symptoms associated with hypotension, but blood pressure levels were normal in both patients when measured during a hospital visit. One patient (3.2%) in the tamsulosin group had adizziness. One patient (3.2%) in the naftopidil group had a tinnitus.

Discussion

In general, no difference was found among the 3 drugs, however, each drug was found to have slightly different characteristics. Tamsulosin could be characterized by its effects in reducing postvoid residual urine, whereas naftopidil was characterized by its effects in relieving symptoms resulting from bladder irritation. Terazosin may cause hypotension when administered to elderly patients with impaired vascular reactivity. However, for treating younger patients with no circulatory system problems, terazosin has an advantage of costing much less than the other two drugs.