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Title: RELATIONSHIP BETWEEN ULTRASOUND-ESTIMATED BLADDER WEIGHT (UEBW) AND URODYNAMIC TESTS IN PATIENTS WITH INFRAVESICAL OBSTRUCTION

Aim of Study:

In a previous publication ⁽¹⁾, in patients with BOO secondary to BPH treated with tamsulosin, an alpha-1A/D-selective adrenergic antagonist, we verified a reversibility of detrusor hypertrophy caused by the obstruction (expressed by the ultrasound-estimated bladder weight, UEBW ^(2,3)). Aim of the study was to check any correlation between UEBW and the main urodynamic parameters, to suggest a possible rationale to the clinical finding.

Methods:

In the period between February 1999 and January 2000, 32 patients coming under our observation for LUTS, were enrolled into an open pilot-study. At baseline, all the patients were studied with a clinical examination, hematochemical tests, BP measurement, urine analysis and urine culture, IPSS, retrograde and micturition urethrocytography, free uroflowmetry and urodynamic study, renovesical transrectal prostatic ultrasound with calculation of the bladder weight. Basing on the ICS nomogram, patients were divided into obstructed, non-obstructed and equivocal. Obstructed and equivocal patients were treated with tamsulosin 0.4 mg/day. All the patients were assessed after 30, 60 and 180 days.

Results:

29 out of 32 patients were assessed; 3 withdrew from the study before first assessment; 16 patients were obstructed, 7 and 6 were respectively non-obstructed and equivocal. In the obstructed group, UEBW was 64.06(g) at baseline and 55.11 (g) at the end of the study (P vs. Baseline 0.00). Q_{max}, IPSS, PVR and PdetQ_{max} at 180 days were significantly different from baseline value (P vs. baseline 0.00). The number of Abrams-Griffith (AG) at day 180, in the obstructed group, was changed in a statistically significant degree versus the baseline value (P value with t-test: 0.00).

In the group of obstructed patients, a statistically significant correlation was found between UEBW and PVR (P value: 0.003; Pearson coefficient: 0.690) and AG (P value: 0.045; Pearson coefficient: 0.506). Age, Q_{max} and IPSS were not correlated in a statistically significant degree with UEBW.

Conclusions:

In the group of obstructed patients, the drug has caused a reduction of the degree of BOO ⁽⁴⁾. An indirect drug action may be suggested, with a possible reduced functional demand by the smooth muscle cells and a secondary reduction of the degree of detrusor hypertrophy-hyperplasia and bladder weight. Moreover, a possible direct action of tamsulosin, an alpha-1A/1D-selective adrenergic antagonist on the smooth muscle cells cannot be excluded. This action should be tested in the future with morphologic and morphometric

studies.

References:

1. Sironi, D., Levorato, C. A., Deiana, G., Ranieri, A., Micheli, E., Borgonovo, G., Belussi, D., Canclini, L., Peracchia, G., Paganelli, A., Cosciani, S., Lembo, A.: The use of ultrasound estimated bladder weight (UEBW) in evaluation of change in bladder hypertrophy during treatment with an α -1 blocker. *Eur. Urol.*, 37/S2/00, 103, 2000.