

ONE YEAR FOLLOW-UP POST-TUR OR OPEN PROSTATECTOMY BY ULTRASOUND ESTIMATED BLADDER WEIGHT

Hypothesis / aims of study

The aim of the study is to evaluate any detrusor change post open prostatectomy or post TUR with a non-invasive method as ultrasound estimated bladder weight (UEBW). In case of bladder hypertrophy it would demonstrate that ultrasonic measurement of detrusor weight predict infravesical obstruction.

Study design, materials and methods

Between November 2002 and March 2004 30 consecutive urinary obstructed patients already candidate to endoscopic or open prostatectomy were evaluated using UEBW, uroflowmetry and ultrasonic post-void residual (PVR). All patients signed the informed consent and underwent the already established operation. The two groups of 15 patients each underwent UEBW, uroflowmetry and PVR performed 1, 3, 6 and 12 months postoperatively. The IPSS was evaluated preoperatively, 6 and 12 months post-op. Statistical evaluation was performed comparing postoperatively data with baseline using Student's t-test and <0.05 was defined as statistical significant. The estimated bladder weight was measured at baseline and 1, 3, 6 and 12 months postsurgery using a 7,5Mhz trans-abdominal ultrasound probe as described in (1).

Results

The mean age of Open Surgery group was 72,33yrs ($\pm 7,0$ SD) and of TUR was 69,20yrs ($\pm 8,9$ SD). There is no statistical difference between the groups. Technical results are collected in the tables.

TABLE 1 = ANALYSIS OF DATA FOR TUR GROUP (N + S.D.)

15 Patients	Baseline	Post TUR 1 Month	Post TUR 3 Months	Post TUR 6 Months	Post TUR 12 Months
Q max ml/sec	4,2+4,9	16,8+6,8(*)	18,3+7,9(*)	16,9+5,2(*)	16,7+5,8
Q med ml/sec	4,4+2,2	9,2+3,9(*)	10,3+5,0(*)	10,0+3,9(*)	9,6+4,0
UEBW gr	74,6+21,0	57,2+17,6(*)	54,1+21,3(*)	54,4+19,4(*)	62,5+20,4
MINCTION VOL ml	223,73+132	276,4+163	394,7+230	300,8+140(*)	359,0+154
POST VOID RESIDUAL ml	78,0+73,2	64,2+103,2	52,9+40,1	48,4+47,2	44,8+36,1
IPSS	15,5+3,8	-	-	5,33+2,8	6,50+3,2

(*) = $p < 0,05$ BASAL VS POST-TUR

TABLE 2 = ANALYSIS DATA FOR OPEN PROSTATECTOMY (N + S.D.)

15 Patients	Baseline	Post Surgery 1 Month	Post Surgery 3 Months	Post Surgery 6 Months	Post Surgery 12 Months
Q max ml/sec	4,9+4,4	15,0+5,8(*)	18,6+9,3(*)	17,4+7,6(*)	18,2+2,5(*)
Q med ml/sec	2,3+2,2	8,6+3,7(*)	9,9+3,5(*)	9,8+4,0(*)	11,1+2,8
UEBW gr	66,0+14,1	50,3+19,3(*)	52,6+15,6(*)	49,5+19,5(*)	60,7+20,1
MINCTION VOLUME ml	180,0+114	233,6+130,5(*)	272,2+127,8(*)	299,2+174,7	290,5+116,7
POST VOID RESIDUAL ml	95,0+73,2	18,6+17,6(*)	36,9+30,1(*)	51,8+50,2	30,6+17,8(*)
IPSS	16,4+5,2	-	-	5,13+3	6,27+2,6

(*) = $p < 0,05$ BASAL VS POST-OPEN SURGERY

Interpretation of results

-**UEBW**: against a significant reduction after 1 month in Open Surgery group and a significant statistical decrease versus baseline after 3 months for each treatment group, on long-term evaluation there is a light but constant increase of the average values to baseline.

- **Q max**: an increase with a significant difference versus baseline in either group is confirmed at each control during the time, and it maintains a constant not obstructed value.

- **Post Void Residual**: a statistical significant decrease after 1 month in post Open Prostatectomy, and a numerical decrease after 3, 6 and 12 months for each group.

- **IPSS** evaluation decreases from an obstructed value at baseline to an unobstructed value at 6 and 12 months for each group of treatment.

Concluding message

The results obtained seem to confirm the more encouraging data obtained in a shorter period of evaluation. The correlation between bladder hypertrophy and infravesical obstruction after surgical relief of obstruction is confirmed: the uroflow improves immediately post-surgery and maintains unobstructed values as time passes, the post-void residual volume decrease during the long period of observation. The statistical analysis is influenced by the low number of patients at each control and especially at 1month, but a trend of the influence of TUR or open prostatectomy on the detrusor wall could be estimated.

References

1. Ultrasonic estimation of bladder weight as a measure of bladder hypertrophy in men with infravesical obstruction: a preliminary report. Urology 47:942-947,1996.
2. Reversible change of bladder hypertrophy due to benign prostatic hyperplasia after surgical relief of obstruction J. of Urology 158, 89-93, July 1997.
3. A prospective study of the safety and efficacy of suprapubic transvesical prostatectomy in patients with benign prostatic hyperplasia J. of Urology 166, 172-176 July.