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METHOD OF EVALUATION OF BLADDER CONTRACTILITY IN THE ABSENCE OF SELF-URINATION

Aims of Study

To develop a method for evaluation of urinary bladder contractility in the absence of self-urination

Methods

The method provides a record of detrusor pressure in maximal urine flow rate during artificial «micturition» via suprapubic catheter. Three-way catheter Foley Ch-20 (RUSCH, Germany) was used as drainage. Artificial «urethral resistance» was modulated by raising of the drain pipe end up to 40 cm over the symphysis that was acceptable normal for unobstructed urethra. The height corresponds to the physiologic maximum urethral closure pressure,

Study has been carried out in 35 men with mean age of 69,1±2,9. All the patients had BOO due BPH complicated by acute or acute on chronic retention making necessary suprapubic catheterisation. Duration of the drainage ranged from 3 days to 3-4 weeks. Patients were examined according to the «Recommendations of the International Scientific Committee of the 5th International Consultation on BPH» [6] Study involved only the patients who had results of filling cystometry corresponding to normal detrusor [7]. During the standard pressure-flow studies 24 patients with clamped suprapubic catheters were able to urinate having V voiding > 150 ml, Qmax > 5 ml/s and presented a control group. Remaining 12 patients (main group) failed to urinate during the test or their parameters were V voiding < 150 ml, Q max < 5 ml/s. As evaluation of Pdet max iso [4] during the trial of self-urination gave an opportunity to judge bladder contractility just indirectly, patients of this group were undergone to above mentioned modified pressure-flow studies with record of detrusor pressure in maximal flow rate during artificial «micturition» via suprapubic catheter. Results of urodynamical investigations were analysed according to the Recommendations of ICS Committee on Standardisation of Terminology 1988 [2]. Accordingly, for evaluation of the bladder contractility we used the meanings of Pdet Qmax and bladder contractility index (BCI) [5], which was assessed by the method described by Schafer [3].

Results

Results of contractility evaluation in patients of both groups are presented (Table 1).

Parameters		pressure-flow studies (control group) n=24	Trial to void (main group)	Modified study (main group) h=40cm n=12
Qmax	ml/s	7,0 ± 0,26	-	15,3 ± 1,26
V voiding	ml	153,3 ± 6,70	-	272,5 ± 23,98
Pdet Qmax	CM H_20	116,7 ± 6,50	-	-
Pdetmax iso	CM H_20	-	100,5 ± 20,27	46,1 ± 5,44
Pabd %	%	31,80 ± 1,52	29,58 ± 2,74	45,66 ± 4,39
URF		3,40 ± 0,29 -		0,23 ± 0,05
PVR	ml	68,95 ± 9,20	280,0 ± 21,76	0
BCI		151,66 ± 6,52	-	123,16 ± 8,05

note: Pdet max iso - maximal detrusor pressure of isometric contractility during the trials to void, URF - urethral resistance factor [1].

Results of modified pressure-flow studies evidence of satisfactory bladder contractility in patients of the main group that was documented in further urodynamic investigations after radical operations carried out in those patients. In particular, during uroflowmetry measurements Qmax approaches 17,2+4,36 ml/s. There were no patients having residual urine.

Conclusions

Results of the study show that modified «pressure-flow» studies with simultaneous record of detrusor pressure in maximal urine flow rate during artificial «micturition» via suprapubic catheter with «urethral resistance» model provides necessary information of contractile bladder function in patients with BOO in cases when standard investigation is not possible due absence of self -urination.

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