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FACTORS DETERMINING THE EFFECT OF THE PRESSURE CATHETER URETHRALLY ON THE PEAK FLOW RATE DURING PRESSURE FLOW STUDY.

Hypothesis / aims of study

Pressure Flow study is the mainstay for diagnosis of infravesical obstruction in the modern urodynamic studies. Since the development of this test, there has been a continuing debate regarding the effect of the urethral catheter on the results of the test. Recently, it has been shown that urethral pressure catheters of size 8 fr and less don't obstruct the outflow. In the present study, we are examining the effect of the presence of the urethral pressure catheter on the peak flow rate during pressure flow study and factors determining the magnitude of this effect.

Study design, materials and methods

Ninety four patients presented to our urodynamic clinic for assessment of various voiding and storage problems were included in our study. Only 62 were eligible for this study. Pressure flow study was done with a 6, 5, or 4 fr urethral pressure catheter used randomly. The pressure flow data were compared to the free uroflowmetry data. The magnitude of the difference in the peak flow rate, between the two studies, were correlated with age, sex, peak flow rate of both the uroflowmetry and pressure flow study, the voided volume in both studies, opening pressure, detrusor pressure at maximum flow, AG number, group specific urethral resistance factor (URA), detrusor contraction strength (WF max), cystometric capacity and finally the presence or absence of uninhibited contractions.

Results

There was a statistically significant difference between the peak flow rates of the uroflowmetry (18.96 ± 1.5 ml/s) as compared to the pressure flow study (15.55 ± 1.36 ml/s). The difference between the values of the average flow rate and voided volume in both studies didn't reach statistical significance. Female patients showed on the average an increase in the flow rate by 3.67% while male patient showed a drop by 19.53% when the pressure flow study peak flow rate was compared to that of the free uroflowmetry. Catheter size effect on the maximum flow rate didn't reach statistical significance. None of the factors mentioned in the methodology correlated with the magnitude of the change in the peak flow rate. Nevertheless, there was some correlation between the uroflowmetry peak flow rate and the URA value (R^2 =0.33).

Interpretation of results

The presence of pressure catheter urethrally during the pressure flow study affected the peak flow rate in males but didn't reach statistical significance. This effect was not apparent in females. None of the parameters indicating infravesical obstruction or that expressing detrusor strength correlated with the magnitude of that difference. However, this negative effect of the pressure catheter does not seem to affect the final diagnosis of the patient

Concluding message

There is statistical non significant decrease in the maximum flow rate during the pressure flow studies in male patients as a result of the presence of the pressure catheter in the urethra. This decrease is not seen in females.