

## ESTIMATION OF DETRUSOR MUSCLE RESERVE USING A NOVEL PROTOTYPE TEST OF SIMULATED OUTFLOW RESISTANCE IN ADULT MALES.

### Hypothesis / aims of study

A novel non-invasive test would offer initial data regarding the reserve of the Detrusor muscle when facing artificial prototype of outflow resistance. This aims at the prediction of the convenience of the offered management of outflow obstruction to any patient. It would help to differentiate those with adequate reserve and are candidates for conservative management, from those with limited reserve who are amenable for complications, such as retention, and would better be managed by early surgical intervention

### Study design, materials and methods

Twenty adult males <40 years old were subjected to this study. Exclusion criteria were males with known symptomatic or radiologic infra vesical obstruction and/or Maximum flow rate < 15ml/sec or significant post void residual.

All subjects were asked to undergo initial uroflowmetry. They were later asked to void into a uroflowmeter through a condom catheter fitted to the glans penis connected to a vertical glass tube of 14 Fr inner diameter. The vertical tube guided urine to a vertical height of 10 cm above the level of the symphysis pubis before falling into the uroflowmeter. The test was then repeated at increasing heights of 20,30,40,50 and 60 cm at different days. Mean Maximum flow rates were compared for each subject with his own initial maximum flow rate as control. Post voiding residual was also assessed after each uroflowmetry study. Again, results were compared to initial recorded residual values.

### Results

All subjects were able to continue the study without technical difficulty. No complications were observed, with only some difficulty in voiding experienced with the 50 and 60 cm height resistance. Initial Q<sub>max</sub> ranged between 16 and 38 with a mean of 26.7 ml/sec. Q<sub>max</sub> decreased progressively to 18.1ml/sec at 60 cm height. The rate of decrease ranged between 0.2 and 1.9 ml/sec for each 10 cm increase of height except for the first 10 cm height which resulted in 4.8 ml/sec decrease of uroflowmetry. PVR progressively and slightly increased with each step of height to a maximum of 56 cc at the 60 cm height. High PVR > 50 cc was noticed only at 60 cm height resistance inspite of mean Q<sub>max</sub> still within normal level.

### Interpretation of results

A 40 cm height resistance in a tube of 14 Fr inner diameter is set as the cut-off level of resistance that the Detrusor Muscle Reserve in a young healthy adult male could overcome with adequate bladder emptying and normal flow.

### Concluding message

This novel test allowed the non-invasive estimation of the Detrusor muscle reserve in healthy young adult males. The test is non invasive, cheap, simple, and feasible and with very limited technical difficulties.

### Disclosures

**Funding:** None **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** Faculty of Medicine, Alexandria university Ethics committee **Helsinki:** Yes **Informed Consent:** Yes