

ESTIMATION OF DETRUSOR RESERVE TO OVERCOME URINARY OUTFLOW RESISTANCE IN ADULT MALES SUFFERING FROM DIABETES MELLITUS

Hypothesis / aims of study

Increasing prevalence of diabetes mellitus and rising patient life expectancy are causing an accumulation of urologic late complications despite improving medical health care. The prevalence of diabetic cystopathy (impaired bladder sensation, increased bladder capacity, sometimes accompanied by voiding difficulties and residual urine varies between 25 and 48%). Since diabetic cystopathy often develops insidiously and asymptotically, prevention of secondary complications requires the early detection of urodynamic changes.

The aim of this work is to estimate the detrusor reserve needed to overcome graduated increased outflow resistance in asymptomatic young adult diabetic males and to compare the results with that of healthy adult males. In a previous study of Detrusor Reserve on 40 healthy young adult volunteers, mean Qmax and PVR were maintained within normal till 40 cm height resistance.

Study design, materials and methods

Forty adult males < 40 years old suffering from diabetes mellitus for > 10 years and still have no urologic complaints were included in this study. All patients had initial uroflowmetry. The patients were then asked to void through a condom catheter fitted on the penis and the urine was guided into a vertical glass tube of 14 Fr inner diameter to the uroflowmeter. Serial uroflowmetries were repeated at increasing tube heights of 10, 20, 30, 40, 50 and 60 cm above the level of symphysis pubis at different days. Maximum flow rate was compared for each patient with his own initial one. Post void residual urine (PVR) using Transabdominal ultrasound probe was measured after each uroflowmetry testing.

Results

All patients were able to continue the study without complications. Some difficulties were met in some patients during voiding through the 50 and 60 cm height resistance tubes. Initial Qmax ranged between 16.1 and 28.5 with a mean of 23.3 ml/sec. Qmax decreased progressively to a mean of 14.7 ml/sec at 30 cm height. PVR also progressively increased with each step of height. Mean PVR > 50 cc was noticed at 20 cm height resistance (PVR=52.6 c.c)

Interpretation of results

A 20 cm height resistance was found as the level of resistance that the Detrusor Reserve in young asymptomatic diabetic adult males could overcome with adequate bladder emptying and normal flow.

Concluding message

Although young adult diabetic patients had no urologic complaints and showed initial Qmax and PVR within normal, Detrusor reserve test showed that they have a lower reserve in comparison to healthy adult males. This simple non invasive test could be used as a screening monitor tool in diabetic patients before irreversible diabetic cystopathy occurs.

Disclosures

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