

Diagnosis of Bladder-Neck or Prostate Middle Lobe 'Dynamic Bladder Outlet Obstruction' During Voiding

Introduction and Objective: Bladder-neck hypertrophy (BNH) and prostate middle lobe enlargement (PML) can cause symptoms of lower urinary tract dysfunction in male patients. However, the pathophysiology of this dysfunction is poorly understood. We present our P/Q-plot observations in patients with BNH and/or noticeable PML enlargement.

Materials and Methods: Patients with 'clinical' evidence of BNH or PML were analysed. Twelve had a 'high' bladder-neck ('BNH'), observed during outpatient cystoscopy. In eleven patients a 'protruding PML' was observed, by cystoscopy and/or by transrectal ultrasound. Standard pressure flow analysis was performed.

Results: Mean IPSS score of this group of male patients (mean 62 year, range 32-71) was 18 points (range 6-36 points) with average 4 (2-6 points) on IPSS bother question. Mean prostate volume was 31 grams (range 20-79 grams). Mean free flowmetry Q_{max} was 16.0 ml/s (range 8-31.7 ml/s) with a volume voided 291 ml (range 135-660) and average postvoid residual 118 ml (0-660). Average urethral resistance parameter URA was 25 cmH₂O and average Schäfer obstruction grade was 2. Only two patients had bladder outlet obstruction according to the current limits (BOO; URA >28 cmH₂O and Schäfer grade >2). Common observation in all these patients was, however, an upward deflection of the pressure flow curve in the second phase of voiding (where, in a typical voiding with BOO, a downward curve is expected). Interpretation of results: the upward curvature of the P/Q plot - second (lower pressure-) phase of voiding indicates that there is a secondary increase in bladder outlet 'resistance' subsequently to Q_{max} . We speculate that the BNH or PML are causing this 'dynamic bladder outlet obstruction' in these patients, however; prospective and systematic comparison to a gold standard to evaluate the sensitivity and the specificity of these observations is needed.

'Dynamic bladder outlet obstruction' (in the second phase of the voiding) causes residual urine and symptoms despite good Q_{max} and relatively low grade of BOO (based on $P_{det}atQ_{max}$).

Conclusion: Detailed observation of pressure flow curve can explain pathophysiology of lower urinary tract dysfunction caused by BNH or PML enlargement. BNH and or enlarged PML cause a urodynamic P/Q pattern that is potentially sensitive and specific enough to be applicable in clinical practice.