

IS THE CLINICAL VALUE OF UFA (URINE FLOW ACCELERATION) SUPERIOR TO QMAX IN DIAGNOSING BOO IN THE PATIENTS WITH BPH?

Hypothesis / aims of study

Benign prostatic hyperplasia (BPH) is common. The bladder outlet obstruction (BOO) is most frequently occurring in BPH. The pressure - flow examination is the gold standard of BOO diagnosis in patients with BPH. The important non-invasive urodynamic evaluation is the maximum flow rate (Qmax, ml/s). However, the sensitivity and specificity of Qmax of diagnosis of BOO is not satisfying. Thus, to explore a new non-invasive method is necessary. Urine flow acceleration (UFA, ml/s²) refers to the increased uro-flow rate in a period of time from urination to the peak. Whether UFA is superior to Qmax in diagnosing BOO in BPH patients is unclear.

Therefore, the aim of present study is to assess the value of the urine flow acceleration for diagnosing bladder outlet obstruction (BOO) in BPH patients.

Study design, materials and methods

A total of 50 men (58±12.5y) with BPH and 50 normal controls (59±13.0y) were included in this study. Urodynamic examinations were performed in all patients according to the recommendations of the International Continence Society. The urodynamic characteristics of each patient were analyzed and the results were compared between two groups.

Results

Both UFA and Qmax in BPH group were much lower than that of the control group [(2.05±0.85) vs. (4.60±1.25) ml/s² (p=0.0005) and (8.50±1.05) vs. (13.00±3.35) ml/s (p =0.0089)]. Comparing to the standard of diagnose BOO (Qmax<10ml/s) by uroflow, we use UFA<2.05ml/s² for diagnosing the BOO, the sensitivity and specificity of UFA and Qmax in diagnosing BOO were (88% , 75%)vs. (81%, 63%) separately. While compared with the results of P-Q chart the kappa values in correspondence analysis were 0.55 vs. 0.35 for UFA and Qmax in diagnosing the BOO, separately.

Interpretation of results

UFA is a vector, which represents the accelerated speed from the start of voiding to the Qmax. In the urine flow curve, UFA is the average slope of urine flow curve. Our results suggest that urine flow acceleration in patients with BPH was significantly lower than patients without BPH, while the sensitivity and specificity of UFA is higher than that of Qmax in diagnosing BOO. Reflected in the urine flow curve, the controls showed the flow rate accelerated more faster and the flow curve shape showed more "steep", while, in BPH group it showed more "flat". The latter may result from the decreasing of detrusor contractility. In the late stage of BPH, the detrusor denervation instability and structural changes may happen and the detrusor cannot give urine flow enough kinetic energy. Consequently, the time to reach to the Qmax will be longer.

Concluding message

The sensitivity, specificity and kappa value of UFA in diagnosing BOO in BPH patients were higher than that of Qmax in comparison with the gold standard (BOO diagnosed by P-Q chart). The UFA may be a useful urodynamic parameter for diagnosing BOO in BPH patients.

References

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Disclosures

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