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PREDICTION OF INFRAVESICAL OBSTRUCTION AND DETRUSOR CONTRACTILITY USING ULTRASOUND ESTIMATED BLADDER WEIGHT (UEBW) IN MEN WITH BENIGN PROSTATIC HYPERPLASIA

AIMS OF STUDY

Pressure-flow study is thought to be the most reliable method for diagnosing infravesical obstruction and detrusor contractility. We previously reported that ultrasound estimated bladder weight(UEBW) could be promising as a non-invasive tool to predict infravesical obstruction¹⁾. In this paper, we report the possible use of UEBW for diagnosing infravesical obstruction and detrusor contractility non-invasively in patients with benign prostatic hyperplasia(BPH).

PATIENTS AND METHODS

A tolal number of 139 patients (71.2 \pm 7.1 years) with BPH diagnosed by transrectal ultrasonography of the prostate(TRUS) underwent pressure-flow study and the measurement of UEBW.

TRUS was performed using a chair type scanner. Horizontal sonograms of the prostate were photographed every 5mm and prostatic volume(PV) and presumed circle area ratio (PCAR) were measured. The diagnosis of BPH was made when PCAR was 0.75 or more²).

Transabdominal ultrasonography was performed using 7.5MHz probe. UEBW was caluculated from intravesical volume determined by adding voided and residual urine volume and thickness of the anterior bladder wall obtained by scanning lower abdomen.

Pressure-flow study was performed using the Dantec Menuet equipment (Dantec, Denmark). Detrusor pressure at maximum flow (Pdet. at Qmax) and maximum flow rate (Qmax) were recorded. The Abrams-Griffiths(A-G) number was calculated as Pdet. at Qmax - 2Qmax. Patients were divided into obstructed and unobstructed group useing cutoff value of 40. Detrusor strength(DS) number was also calculated as Pdet at Qmax + 5Qmax. Using a cutoff value of DS number of 100, patients were divided into normal detrusor amd weak detrusor group.

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A. Ochiai¹, M. Kojima², M. Inaba², T. Iwata², O. Ukimura², H. Ohe¹, T.Miki² <u>RESULTS</u>

On the basis of A-G number, 96(69%) out of 139 patients were diagnosed to be obstructed and 43 (31%) to be unobstructed.

A simple regression analysis demonstrated that UEBW correlated significantly with A-G number(p<0.0001) but not with DS number. Between subgroups divided by UEBW using cutoff value of 35.0g, there was a significant difference in A-G number(71.2 ± 39.1 vs 47.0 ± 33.2 , p<0.0005) and DS number(114.1 ± 40.9 vs 94.5 ± 33.8 , p<0.005), but no difference in PV and PCAR. Sixty-four(83%) of 77 patients with UEBW of 35.0g or more proved to have infravesical obstruction, compared to 52%(32/62) with UEBW of less than 35.0g(p<0.0001). Fourty-six(60%) of 77 patients with UEBW of 35.0g or more proved to have normal detrusor, compared to 42%(26/62) with UEBW of less than 35.0g(p<0.05).

CONCLUSIONS

UEBW over 35g suggested strongly the presence of infravesical obstruction in BPH patients. On the other hand, when UEBW was less than 35.0g, weak detrusor and less degree of obstruciton were suggested. UEBW could be useful for prediction of both infravesical obstruction and detrusor contractility.

REFERENCES

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