A COMBINATION OF INTRAVESICAL PROSTATIC PROTRUSION AND RESISTIVE INDEX IS USEFUL TO PREDICT BLADDER OUTLET OBSTRUCTION IN PATIENTS WITH LOWER URINARY TRACT SYMPTOMS SUGGESTIVE OF BENIGN PROSTATIC HYPERPLASIA

Hypothesis / aims of study
To examine which parameters obtained from transrectal ultrasonography are accurate predictors of urodynamically-confirmed bladder outlet obstruction in patients with lower urinary tract symptoms suggestive of benign prostatic hyperplasia.

Study design, materials and methods
We retrospectively analyzed the medical charts of 350 patients who were referred to our hospital with lower urinary tract symptoms suggestive of benign prostatic hyperplasia in spite of receiving α1-blocker treatment between January 2009 and December 2014. Baseline parameters were international prostate symptom score, quality of life score, total prostate volume, transition zone volume, transition zone index (= transition zone volume / total prostate volume), intravesical prostate protrusion, resistive index of the prostate capsular artery (= [peak systolic flow velocity – end-diastolic flow velocity] / peak systolic flow velocity), maximum urinary flow rate and prostatic specific antigen; however, there was no significant difference in age or postvoid residual urine volume. Preceding alpha-adrenergic antagonist was naftopidil in 119 patients, silodosin in 116 patients, and tamsulosin in 115 patients. There were no significant differences among three groups in the bladder outlet obstruction index (naftopidil; 44.2, silodosin; 44.2, and tamsulosin; 47.3). Rank correlation analysis showed that the bladder outlet obstruction index positively correlated with intravesical prostate protrusion (r = 0.567, p < 0.0001), total prostate volume (r = 0.369, p < 0.0001), transition zone volume (r = 0.405, p < 0.0001), transition zone index (r = 0.392, p < 0.0001), resistive index (r = 0.348, p < 0.0001) and prostatic specific antigen (r = 0.232, p < 0.0001). Chi-squared tests revealed that resistive index was the only significant independent variable with intravesical prostate obstruction (p = 0.014).

Interpretation of results
The present study demonstrated that intravesical prostate protrusion might be the most useful parameter among them. Further, intravesical prostate protrusion and resistive index is the only independent combination among them, and the combination of them increases positive predictive value of bladder outlet obstruction.

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Concluding message
Intravesical prostate protrusion and resistive index are useful parameters for predicting bladder outlet obstruction in patients with lower urinary tract symptoms suggestive of benign prostatic hyperplasia. In clinical situations, the combination of intravesical prostate protrusion and resistive index on ultrasound can be diagnostic of bladder outlet obstruction.

Disclosures
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