

LIMITED CORRELATION BETWEEN PRESUMED CIRCLE AREA RATIO (PCAR) AND THE SEVERITY OF LOWER URINARY TRACT SYMPTOM (LUTS) IN KOREAN MALE

Hypothesis / aims of study

Though presumed circle area ratio (PCAR) had been highlighted as a mechanism underneath the development of male lower urinary tract symptom (LUTS), there was paucity of data supporting its clinical relevance, particularly in Asian people. We thus investigated the correlation between the degree of PCAR and the severity of LUTS.

Study design, materials and methods

From September 2012 to June 2014, 144 consecutive patients without prior medication for LUTS including alpha blocker, 5 alpha reductase inhibitor, anticholinergics, and desmopressin underwent transrectal ultrasonography (TRUS) on the prostate by a single experienced radiologist as a routine evaluation for LUTS, measuring prostatic volume, the ratio between transitional zone volume to total volume (TZTV), prostatic urethral angle (PUA), and PCAR, which was defined as the ratio of the area of the maximum horizontal section to that of a presumed circle with the equal circumference of the section. The severity of LUTS was prospectively assessed using International Prostate Symptom Score (IPSS) and uroflowmetry values. Correlation between TRUS variables and the severity of LUTS was then analyzed.

Results

The mean age was 65.6 ± 9.4 years, and the mean prostatic volume, TZTV, and PCAR was 33.2 ± 23.4 ml, 0.48 ± 0.16 , 33.5 ± 10.9 , and 0.76 ± 0.05 , respectively. In simple correlation analysis using IPSS as a continuous variable, no ultrasonographic variable showed a significant link. When dividing total IPSS into obstructive (IPSS Q 1, 3, 5, 6) and irritative component (Q 2, 4, 7), obstructive symptoms showed significant correlation solely with the degree of PCAR ($\rho = -0.17$, $p = 0.037$). However, when dividing total IPSS into three categorical grades based on severity, no association was observed (PCAR in mild vs. moderate vs. severe: $n = 39$, mean = 12.8 ± 6.7 vs. 56 , 14.3 ± 6.7 vs. 49 , 11.7 ± 3.5 , $p = 0.078$). In a multiple linear regression model, none of the TRUS measurable variables showed significant association with the degrees of LUTS using both in continuous and categorical parameters except age, which showed a significant link between irritative symptoms ($R^2 = 0.027$, $B = 0.073$, $p = 0.049$). In uroflowmetry, age was a single variable ($R^2 = 0.127$, $B = -0.206$, $p = 0.003$) showing correlation with maximal flow rate.

Interpretation of results

No significant associations were found between the degree of PCAR and the severity of LUTS.

Concluding message

In this prospective observational series for Korean men, no significant associations were found between the degree of PCAR and the severity of LUTS.

Disclosures

Funding: none **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** YUMC Helsinki: Yes **Informed Consent:** Yes