

THE CALIBER AND LENGTH OF THE URETHRA IN TAIWANESE MEN AND THE CORRELATION WITH CLINICAL DATA

Hypothesis / aims of study

Endourological procedures and urethral catheterization are the fundamental daily practice of Urologist. There are no population-based data regarding length and caliber of the male urethra. This study aimed to measure the urethral length and caliber in Taiwanese men, and to evaluate their correlation with age, body height, weight, prostate volume, lower urinary tract symptoms and uroflowmetry.

Study design, materials and methods

From January to March 2017, patients' calibers of anterior urethra were determined before scheduled endoscopic surgery by bougie à boule under spinal or general anesthesia. The urethral lengths were obtained via indwelling Foley's catheter after surgery by two methods. The distance of Foley's catheter at penis's tip to the end of Foley's catheter was recorded in the operation room and the urethral length was calculated by subtraction. Alternatively, the Foley's catheter was marked at penis's tip and the distance from mark to the beginning of re-inflated balloon was obtained upon removal of Foley's catheter. The demographic data, estimated prostate volume, uroflowmetry, the International Prostate Symptoms Score (IPSS), Overactive Bladder Symptom Score (OABSS) and Urogenital Distress Inventory (UDI-6) were investigated. Patients with the history of urethral trauma, stricture, sounding, transurethral resection of the prostate (TURP), transurethral resection of bladder tumor (TURBT) were excluded.

Results

Fifty-six patients with a mean age of 67.4 ± 12.9 years (range, 31-88 years) were studied. The mean body height, weight and body mass index (BMI) were 165.3 ± 6.35 cm (range, 152.0-179.8 cm), 68.1 ± 12.5 kg (range, 42.5-99.7 kg) and 24.8 ± 3.95 kg/m² (range, 17.1-32.5 kg/m²), respectively. The mean male urethra was 26.5 ± 3.0 Fr (i.e., 8.8 ± 1.0 mm) in diameter and 17.6 ± 2.6 cm (range, 12.1-24.5 cm) in length. Statistically significant linear relationship of urethral length was positive with body height/weight/BMI (all $p < 0.01$) and negative with age ($p = 0.012$). The associations were moderate in strength ($r = 0.353, 0.469, 0.364, -0.333$). There were no statistically significant correlations between urethral length/caliber and the other clinical data.

Interpretation of results

The mean male urethra was 17.6 ± 2.6 cm long and 8.8 ± 1.0 mm (i.e., 26.5 ± 3.0 Fr) in diameter in Taiwanese adults. The urethral length was positively correlated with body height, weight and BMI and negatively correlated with age.

Concluding message

There was scarce data regarding adult male urethral caliber and urethra. Our study provides anatomic information as clinical reference. The positive correlations of urethral length with body height, weight and BMI and negative correlation with age were noted.

Disclosures

Funding: No **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** This is our preliminary study and we are applying for approval from the IRB. The urethral caliber is always measured before endourological procedures. We collected the Foley's catheters upon removal and recorded the urethral length after patients' agreement. **Helsinki:** Yes **Informed Consent:** No