

HETEROGENEITY OF MALE LUTS/BPH – ANALYSIS OF VIDEOURODYNAMIC DIAGNOSIS BASED ON TOTAL PROSTATE VOLUME AND AGE

Hypothesis / aims of study

Lower urinary tract symptoms (LUTS) are highly prevalent in men. Male LUTS can result from a complex interplay of pathophysiologic features that can include bladder outlet obstruction (BOO) and bladder dysfunction (BD). The aim of this study was to analyze the diagnosis of male patients with LUTS and benign prostatic hyperplasia (BPH) based on video-urodynamic studies (VUDS), associated with age and total prostate volume (TPV).

Study design, materials and methods

A total of 875 men aged ≥ 40 years old with LUTS and TPV>20ml, receiving the transrectal sonographic examination of TPV and VUDS, were enrolled in the study from August 1997 to November 2012 in a tertiary teaching hospital. The causes of LUTS were determined based on VUDS results. The diagnosis in BOO group included bladder neck dysfunction (BND), benign prostatic obstruction (BPO), and poor relaxation of external sphincter (PRES), and that in BD group included detrusor overactivity (DO), hypersensitive bladder (HSB), detrusor underactivity (DU), and detrusor hyperactivity with impaired contractility (DHIC). We analyzed the different distribution of VUDS diagnosis in male LUTS by age and TPV.

Results

The mean age was 72.7 ± 11.0 years (range, 40-92). There were 27 patients in age<50 group, 305 patients in age 50-69 group, and 543 patients in age>70 group. The percentage of BOO in male LUTS was 69.3%, and that of BD was 30.7% (Fig. 1). The most common diagnosis in BOO group differed by age significantly (PRES in age<50, BND in age 50-69, and BPO in age ≥ 70 , $p < 0.01$) (Fig. 2A). DO is the most common diagnosis in BD in all of the age groups, and the cases of DHIC increased with age (Fig. 2B) ($p < 0.01$). In patients with age<50, PRES was the most common diagnosis in BOO in either small prostate (TPV ≤ 40 mL) or large prostate (TPV>40 mL) ($p = 0.85$). In patients with age 50-69, the most common diagnosis in those with BOO and small prostate was BND, and that in those with BOO and large prostate was BPO ($p < 0.01$). Similar results were observed in patients with age ≥ 70 ($p < 0.01$). In all age groups, the majority of patients with DO, HSB, DU, and DHIC had a small prostate.

Interpretation of results

In male LUTS, the diagnosis in BOO was affected by age and prostate volume. Young patients has a small prostate with relatively low contribution to BOO, and the main diagnosis in BOO was PRES. As age increased, the tightness of bladder neck and prostate size increased with age, which caused more BND in patients with small prostate and more BPO in those with large prostate. However, although age did not affect the leading percentage of DO in BD, the cases of DHIC increased in elderly. It implied the complexity of bladder function increased with age, probably due to the interplay of BOO especially in those with chronic symptoms.

Concluding message

In male LUTS, the diagnosis in BOO differed by age and prostate volume. The leading diagnosis in BOO in young patients was PRES, and the contribution of prostate volume to BOO increased by age. As age increased, the bladder function became more complex with increased percentage in DHIC. Both bladder outlet and bladder functions were affected by age.

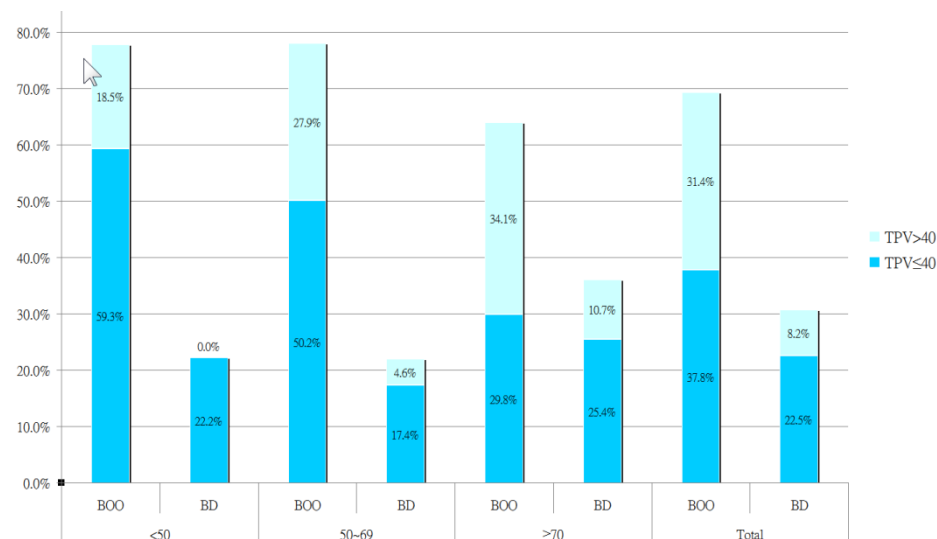


Fig. 1. The distribution of BOO and BD in male LUTS by age and total prostate volume (TPV).

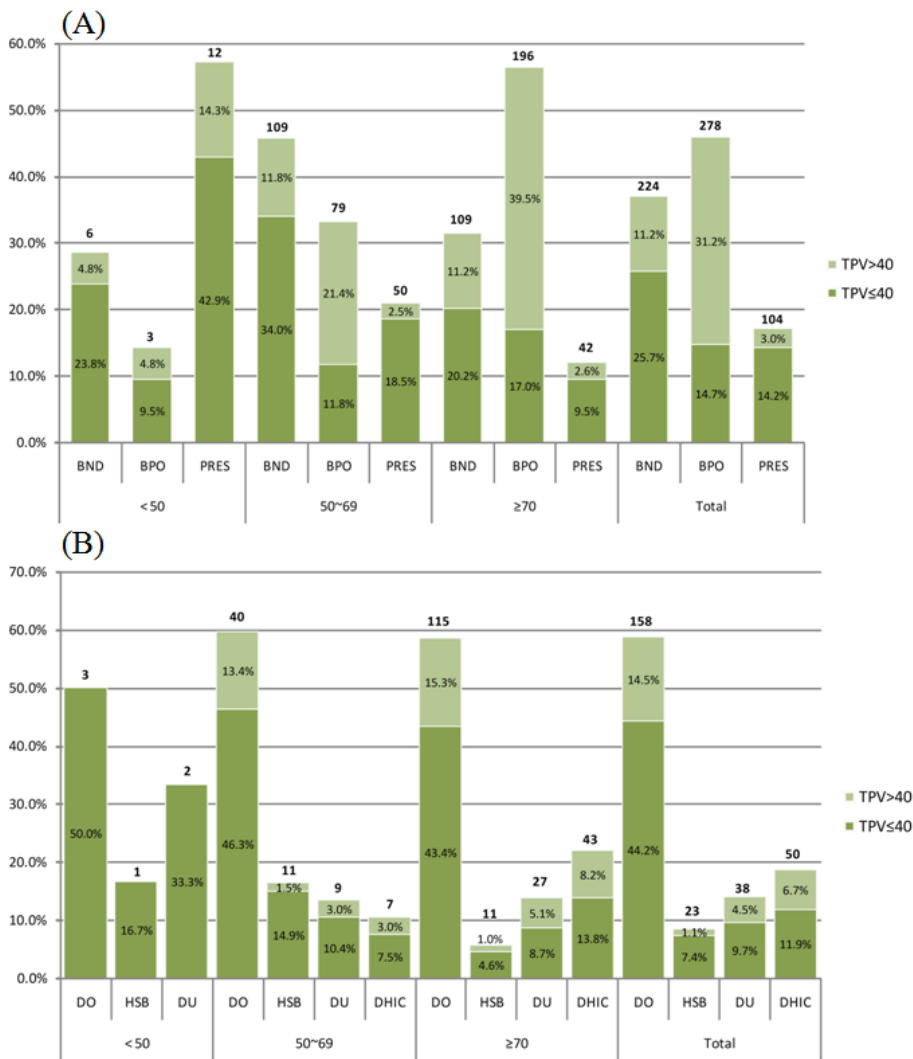


Fig. 2. The distribution of different diagnosis in BOO (A) and BD (B) by age and total prostate volume (TPV).

Disclosures

Funding: None **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Research Ethics Committee of Buddhist Tzu Chi General Hospital, Hualien, Taiwan **Helsinki:** Yes **Informed Consent:** Yes