

## THE RELATIONSHIP OF VOIDING DYSFUNCTION IN WOMEN WITH DIFFERENT STAGES OF PELVIC ORGAN PROLAPSE.

### Hypothesis / aims of study

It has been recognised that female pelvic organ prolapse impairs voiding (1). However, few studies examine the relationship between the degree of pelvic organ prolapse and the severity of voiding impairment. This study aims at delineating the relationship of voiding function in women with different stages of pelvic organ prolapse.

### Study design, materials and methods

A retrospective cohort of 470 women with symptoms of lower urinary tract dysfunction and/or pelvic organ prolapse who were examined in an urogynaecology clinic was used for analysis. Women with previous history of pelvic floor surgery or continent surgery were excluded. All women underwent a standard clinical protocol of the institution which included a clinical examination and an uroflowmetry. The clinical examinations findings were recorded using International Continence Society's Pelvic Organ Prolapse Quantification System (POPQ) (2). Uroflowmetries were performed without urethral catheters and without reducing the pelvic organ prolapse. The maximum flow rates were represented as z-scores according to the Liverpool normogram of maximum flow rate for female population (3).

### Results

The mean age was 54.15 (SD 13.14) years. The mean vaginal parity was 2.92 (SD 1.94). The POPQ stages were stratified according to the most dependent point in the anterior vaginal wall (Aa or Ba); the apical segment of the vagina (C) and the posterior vaginal wall (Ap or Bp).

Table 1. The Relationships of Anterior Vaginal Wall Prolapse and Maximum Flow Rate

POPQ Stage	N=468	Mean z-score of maximum flow rate	Standard deviation of z-score of maximum flow rate
0	172	-0.31	1.48
I	80	-0.51	1.20
II	190	-0.67	1.13
III	24	-0.95	1.84
IV	2	-1.64	0.49

Kruskal-Wallis Test P=0.008

Linear trend P=0.002

Non-linear trend P=0.913

Table 2. The Relationships of Apical Segment of the Vaginal Prolapse and Maximum Flow Rate

POPQ Stage	N=463	Mean z-score of maximum flow rate	Standard deviation of z-score of maximum flow rate
0	378	-0.40	1.30
I	11	-1.18	0.92
II	37	-0.93	1.64
III	31	-1.05	1.33
IV	6	-0.95	0.59

Kruskal-Wallis Test P=0.000

Linear trend P=0.410

Non-linear trend P=0.493

Table 3. The Relationship of Posterior Vaginal Wall Prolapse and Maximum Flow Rate

POPQ Stage	N=453	Mean z-score of maximum flow rate	Standard deviation of z-score of maximum flow rate
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Posterior		flow rate	maximum flow rate
0	412	-0.47	1.31
I	3	1.74	3.86
II	28	-0.90	1.44
III	10	-1.08	0.82
IV	0		

Kruskal-Wallis Test P=0.047

Linear trend P=0.066

Non-linear trend P=0.008

#### Interpretation of results

The results show that there is significant difference in the mean z-score of maximum flow rate among the different stages of prolapse in anterior vaginal wall, apical vaginal segment and posterior vaginal wall. However, a significant linear trend is only demonstrated in anterior vaginal wall prolapse. The finding indicates that the mean z-score of maximum flow rate decreases with increasing stages of anterior vaginal wall prolapse. The reason for the significant non-linear trend observed in posterior vaginal wall prolapse is not apparent in this study. This may suggest that the relationship of posterior vaginal wall prolapse and voiding function is complex.

#### Concluding message

Anterior vaginal wall prolapse is associated with voiding dysfunction. The maximum flow rate decreases with advancing stage of anterior vaginal wall prolapse. Clinicians should be aware of the potential problems of chronic urinary retention in patients with untreated anterior vaginal wall prolapse. Further studies are necessary to delineate the association of posterior vaginal wall prolapse and voiding function.

#### Abstract references

1. Female pelvic organ prolapse and voiding function. *Int Urogynecol J* 2002; 13: 284-8.
2. The standardization of terminology of female pelvic organ prolapse and pelvic floor dysfunction. *Am J Obstet Gynecol* 1996; 175: 10-7.
3. Maximum and average urine flow rates in normal male and female populations - the Liverpool normograms. *Br J Urol* 1989; 64: 30-8.