

THE 'BOTHER' OF PROLAPSE

Hypothesis / aims of study

Female pelvic organ prolapse (POP) is a common condition in women, resulting in a lifetime risk of surgery of about 1 in 5 (1). It involves the herniation of abdominal organs into the vagina and is frequently associated with symptoms of a vaginal bulge or lump, and a dragging pelvic sensation. However, a given anatomical degree of POP may cause no bother at all in one individual, and a severe form of bother in the other. The subjective bother of POP can be determined using a visual analogue scale (VAS), a method commonly used in other fields of medicine. Pelvic floor imaging has recently been introduced to investigate women with pelvic floor dysfunction and provide objective measurements of the extent of the POP (2). The aim of this study is to investigate potential determinants of bother caused by different forms of POP to help in the clinical evaluation of patients, planning of preventative intervention trials and surgical treatment.

Study design, materials and methods

Consecutive patient records of 654 women who had attended a urogynecology unit between August 2011 and December 2012 were reviewed. All women underwent routine clinical investigation including four-dimensional translabial ultrasound using a GE Kretz Voluson 730 Expert system (GE Kretz Medizintechnik, Zipf, Austria) as described previously (3). Ultrasound volume data was obtained in prone position on rest, on maximal Valsalva, and on pelvic floor muscle contraction. Prolapse was scored according to the the International Continence Society POP quantification system. Subjective bother of POP was assessed using a VAS scale, a measurement instrument that assesses the severity of a symptom ranging from zero to ten in a continuous manner with high reproducibility, as shown by us previously (ICC 0.979 (0.961- 0.989) when retested after approximately one hour, without systematic bias, n=40). Both clinical examination and ultrasound assessment were blinded against VAS scores.

Archived ultrasound volumes were analysed by operators who were blinded to clinical findings to obtain objective measures of prolapse. Organ descent was determined relative to the inferior margin of the symphysis pubis for each compartment including cystocele, uterine, enterocele and rectocele descent in mm and rectocele depth using the software 4D View v 5.0-7.0 (GE Kretz Medizintechnik). A test-retest series for all parameters was conducted prior to the analysis and showed good interobserver agreement. The analysis was carried out with the statistical software SAS v 9.3. Linear regression and multiple regression were performed. A p value <0.05 was considered statistically significant.

Results

654 women had been seen between August 2011 and December 2012. Ultrasound data was missing on 17 patients; therefore 637 women were included in the analysis with ultrasound data available for cystocele, rectocele, enterocele and rectocele depth measurements. Out of the 637 women 194 (30.4%) had a previous hysterectomy leaving 443 for assessment of uterine prolapse. Mean age was 57 (20-87), mean BMI was 29 (\pm 6.1), mean parity was 2.6 (0-8). 82 (13%) of the women had a previous caesarean section, 181 (29%) had a previous operative vaginal delivery, 196 (31%) had a previous hysterectomy and 147 (23%) had a previous surgery for POP. 313 women (49.0%) had subjective symptoms of POP at a mean bother score of 6.0 (\pm 2.6). Average bother score for the complete dataset was 3.0 (\pm 3.5) which was not normally distributed. 468 (73.6%) had SUI, 477 (75.0%) had UI, 202 (31.9%) had faecal incontinence and 298 (47.0%) suffered from voiding dysfunction. 366 (57.5%) women were diagnosed with significant prolapse (ICS POP-Q Grade 2+) in the anterior compartment, 348 (54.6%) in the posterior compartment, and 52 (11.4%) in the central compartment. In total, 496 (77.9%) had significant prolapse in any compartment. 147 (23.1%) had an avulsion on tomographic ultrasound, and mean hiatal area on Valsalva was 29.5 (46-63.6) cm². We tested a number of potential predictors of prolapse bother as shown in Table 1. Parity, previous vaginal delivery, avulsion, any significant clinical prolapse or prolapse on ultrasound correlated significantly with prolapse bother, and all clinical and ultrasound measures of pelvic organ descent remained significant or near-significant on multivariate analysis. The best prediction of bother was achieved in models incorporating all three compartments, yielding an r² of 0.23 for clinical prolapse (Table 2) vs. bother and 0.21 for sonographic prolapse measures vs. bother.

	Linear regression (95% CI)	β p	Multivariate analysis
Age (years)	0.2 (0,0.4)	0.08	
BMI	-0.3 (-0.8, 0.2)	0.19	
Parity (mean (range))	4.5 (2.4-6.6)	<0.0001	
Avulsion	18.1 (11.7-24.5)	<0.0001	
Previous operative vaginal delivery	12.7 (6.6-18.7)	<0.0001	
Previous anti-incontinence or prolapse surgery	4.8 (-1.8, 11.4)	0.15	
Previous hysterectomy	3.5 (-2.5-9.5)	0.25	
Ba (n=636)	7.3 (6.0-8.7)	<0.0001	<0.0001

C (n=635)	4.7 (3.7-5.7)	<0.0001	<0.0001
Bp (n=635)	6.1 (4.3-8.0)	<0.0001	<0.0001
Clinical multicompartment prolapse	23.5 (16.7, 30.2)	<0.0001	<0.0001
Bladder descent on US	6.8 (5.3-8.4)	<0.0001	<0.0001
Uterine descent on US (n= 441)	7.7 (5.8-9.6)	<0.0001	<0.0001
Rectal descent on US	3.2 (1.2-5.2)	0.002	0.04
Rectocele depth on US (n=268)	2.8 (-0.1, 5.7)	0.06	
Enterocoele descent on US (n=72)	7.5 (1.3, 13.8)	0.02	0.06
Multi-compartment prolapse on US	16.3 (10.5, 22.2)	<0.0001	0.0004

Table 1: Correlation between prolapse bother and predictors in 637 women (unless other n given). Data given as mean (ß). Ba, C, Bp relative to the hymen. Ultrasound measurements in cm relative to the inferior symphyseal margin. US, ultrasound

Variable	Univariate analysis		R2	Multivariate analysis		
	Beta (95% CI)	P value		Beta (95% CI)	P value	R2*
Ba	7.3 (6.0-8.7)	< 0.0001	0.15	5.3 (3.8-6.9)	< 0.0001	0.23
C	4.7 (3.7-5.7)	< 0.0001	0.14	2.4 (1.4-3.4)	< 0.0001	
Bp	6.1 (4.3-8.0)	< 0.0001	0.06	4.2 (2.5-5.9)	< 0.0001	

Table 2: Multivariate modeling of ICS POPQ coordinates versus VAS prolapse bother score.*Note that Ba and C model gives an R² of 0.20

Interpretation of results

The VAS bother score for prolapse symptoms is highly significantly associated with both clinical and sonographic measures of pelvic organ descent, independently of age, body mass index or previous surgery. The effect of clinically or sonographically determined prolapse on bother is cumulative, i.e., the presence of prolapse in other compartments increases bother for a given degree of prolapse in the index compartment.

Concluding message

Prolapse bother as quantified with a simple visual analogue scale is repeatable and valid and may be a simple tool for use in clinical practice. We intend to test its sensitivity to change in a prospective study.

References

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Disclosures

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