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Dietz H P[1]
1. *University of Sydney*

DOES THE ICS POPQ STAGING SYSTEM REQUIRE REVISION?

Hypothesis / aims of study

Female pelvic organ prolapse is generally quantified on clinical examination using the prolapse quantification system of the International Continence Society (ICS POP-Q), published in 1996(1). The ICS POP-Q stages prolapse according to descent of the anterior and posterior vaginal wall and of the uterine cervix or, after hysterectomy, of the vaginal vault, without any reference to what is deemed 'normal'. There are two primary mathematical approaches to defining 'normal' pelvic organ mobility: either by determining the 95th centile of organ descent in a young, nulliparous population, or by using ROC statistics to define optimal cut-offs for distinguishing symptomatic individuals, as previously undertaken for ultrasound imaging of prolapse(2). This abstract presents results of a study employing this latter approach to investigate the relationship between symptoms of prolapse and ICS POPQ measurements in order to establish optimal cut-offs for the prediction of prolapse symptoms using receiver operator characteristic (ROC) statistics.

Study design, materials and methods

This is a retrospective study using 764 archived data sets of patients seen for symptoms of lower urinary tract and pelvic floor dysfunction between March 2011 and November 2012. Patients had undergone a local standardised interview, ICS POP-Q assessment and 4D translabial ultrasound (US), supine and after voiding (3). The main outcome measure was symptoms of prolapse, defined as the sensation of a lump or bulge in the vagina, or a vaginal dragging sensation. Explanatory parameters were Ba, C and Bp as defined by the ICS POPQ. Receiver operator characteristics statistics and ROC curves were employed to define an optimal cut-off for 'clinically significant' pelvic organ descent, with 'clinically significant' defined as 'likely to cause symptoms of prolapse'.

Results

During the inclusion period 764 patients were seen. Their mean age was 57 (range, 19- 87), with 64% being postmenopausal and 50 currently on HRT (7%). BMI was 29 (range, 18- 55). Symptoms were reported as follows: Stress incontinence 74% (n=566), Urge Incontinence 75% (n=570), Frequency 32% (n=244), Nocturia 47% (n=360), voiding dysfunction 34% (n= 261) and prolapse 53% (n=407). Ninety-one percent (n= 692) were vaginally parous, 31% (n=235) had previously undergone a hysterectomy, and 22% (n=170) an incontinence or prolapse procedure. 605/764 (74%) were found to have a prolapse ICS stage 2 or higher, which comprised a cystocele in 59% (n=452), uterine prolapse in 12% (n=64), a vault prolapse in 4% (n=30) and a clinical rectocele in 55% (n=417). Mean Ba was –1.0 (range, -3 to +5), mean C was –4 (-9 to 15) and mean Bp was –1.0 (-3 to +5). These measures were normally or near- normally distributed on Kolmogorov- Smirnov testing.

On univariate analysis, Ba, C and Bp were all strongly associated with symptoms of prolapse (all P< 0.001). For Ba, ROC statistics resulted in an area under the curve of 0.72 (CI 0.69- 0.76), for C of 0.70 (CI 0.66- 0.73) and for Bp of 0.62 (CI.58-.66) for prediction of prolapse symptoms. Of potential confounders, only age (55.5 vs. 58.3 years, P= 0.004) and menopausal status (60% vs 69%, P= 0.012) were associated with symptoms of prolapse; BMI, previous hysterectomy or incontinence/ prolapse surgery and current HRT use were not.

In order to obtain appropriate cut- offs for the points Ba, C and Bp for 'significant prolapse', that is, prolapse likely to cause symptoms, we analysed datasets after exclusion of those with dominant prolapse in other compartments. For this purpose, uterine prolapse was weighted at one stage over the nominal diagnosis since stage 1 uterine prolapse is clearly more likely to be symptomatic than stage 1 anterior or posterior prolapse.

This resulted in datasets of 557 patients for assessment of Ba, 363 for C and 486 for Bp. For Ba, ROC statistics resulted in an area under the curve of 0.768 (CI 0.729-0.807), C= 0.724 (CI 0.672- 0.776), Bp 0.686 (CI.0.639-.0.733). Optimal cut-off were defined as follows: for Ba = -0.5 (Sensitivity 69%, specificity 71%), C = -5 (Sensitivity 67%, specificity 64%), Bp = -0.5 (Sensitivity 63%, specificity 62%), see Figure 1. We repeated the analysis after excluding those with significant prolapse in ANY other compartment, which resulted in inferior AUC results.

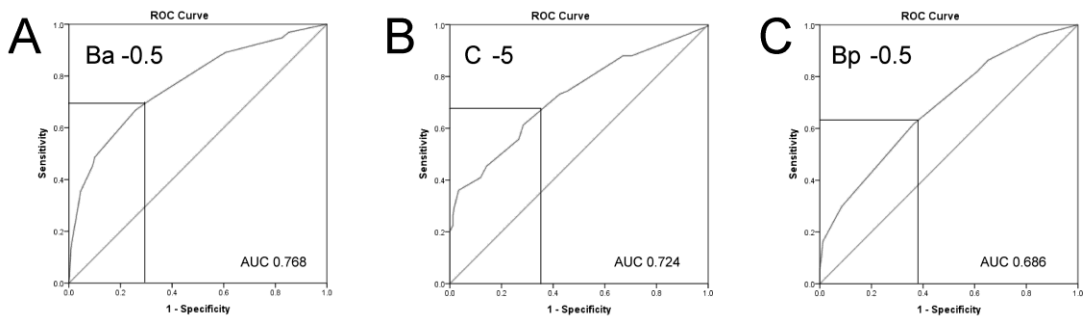

Figure 1: ROC curves for the association between symptoms of prolapse and ICS POP-Q measurements (Ba, left, C, middle, and Bp, right). N=557 for Ba, n=363 for C and n=486 for Bp.

Interpretation of results

There has been considerable debate recently over the definition of 'significant prolapse' which is particularly relevant when used as an outcome measure in trials of pelvic reconstructive surgery. We attempted to optimise both sensitivity and specificity of a diagnosis of 'significant prolapse on ICS POP-Q' using ROC statistics while controlling for multiple confounders, especially prolapse in other compartments. Suggested cut- offs for the diagnosis of 'significant pelvic organ descent' are Ba= -0.5, C = -5 and Bp= -0.5.

Concluding message

The findings of this study suggest that the ICS POPQ staging system requires revision. Prolapse of the anterior vaginal wall to Ba <-1 and of the posterior vaginal wall to Bp <-1 (ie., stage I cystocele or rectocele) should be regarded as within the normal range. On the other hand, stage I uterine prolapse as currently defined seems highly relevant.

References

1. Am J Obstet Gynecol 1996;175(6):1467-70
2. Ultrasound Obstet Gynecol 2007;29:688-91
3. Int Urogynecol J 2011; 22: 1221-1232

Disclosures

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