

PELVIC ORGAN PROLAPSE SYMPTOMS IN RELATION TO POP-Q, ICS ORDINAL STAGES AND ULTRASOUND STAGES

Hypothesis / aims of study

Adequate staging of pelvic organ prolapse is of paramount importance in clinical practice and research. The Prolapse Quantification system (POP-Q), the ICS ordinal stages and ultrasound staging are among the systems used for this purpose. The aim of the present study was to evaluate the ability of the POP-Q, ICS ordinal stages and ultrasound staging systems to discriminate between women with and without symptoms of pelvic organ prolapse.

Study design, materials and methods

Patients presenting with symptoms of pelvic organ prolapse or lower urinary tract dysfunction underwent prolapse staging using the POP-Q, ICS ordinal stages and ultrasound staging systems in a prospective observational study. A 'symptomatic prolapse' was diagnosed when patients confirmed that they suffered from a dragging sensation in the vagina or the sensation of a vaginal lump.

All examinations took place in the supine position. For POP-Q staging the point Ba, Bp and C were determined in centimetres above or below the hymen on maximum Valsalva manoeuvre (1). In the ICS ordinal stages the prolapse was quantified as anterior vaginal wall, uterine, posterior vaginal wall or vault descent Stage 0-4 (1). For the ultrasound staging 2D translabial ultrasonography was carried out in the midsagittal plane using a 5-7-MHz transabdominal transducer (Voluson 730, Kretztechnik, Austria) (2). On maximum Valsalva, the maximum descent of the most caudal aspect of the bladder, rectum, cervix or vaginal vault and small bowel, was determined in millimetres relative to the symphysis pubis (3).

In order to determine the performance of each diagnostic test in detecting symptomatic prolapse we used receiver operating characteristics curve (ROC-curve) statistics. Data were analyzed using SPSS 12.0.1 (SPSS Inc., Chicago, IL, USA). The p-value for statistical significance was set at < 0.05. This was a sub analysis of a parent study approved by the local Human Research Ethics Committee.

Results

Two hundred and eighty-nine (289) consecutive women were evaluated, of which 165 (57%) were asymptomatic and 124 (43%) were symptomatic for prolapse. The mean age was 54.2 ± 14.4 years. ICS ordinal stage 0 or 1 was present in 150 (52%) and stage 2, 3 or 4 in 139 (48%) of women. The area under the ROC-curve, indicating the probability of symptoms of prolapse with increasing stages, was 0.782 (95%CI 0.727;0.837) for the POP-Q, 0.788 (95%CI 0.735;0.841) for the ICS ordinal stages and 0.713 (95%CI 0.653;0.773) for ultrasound staging. These curves are presented in Figure 1. All three staging systems were able to distinguish between symptomatic and asymptomatic women ($p < 0.01$), whereas no statistically significant differences were found among the three systems.

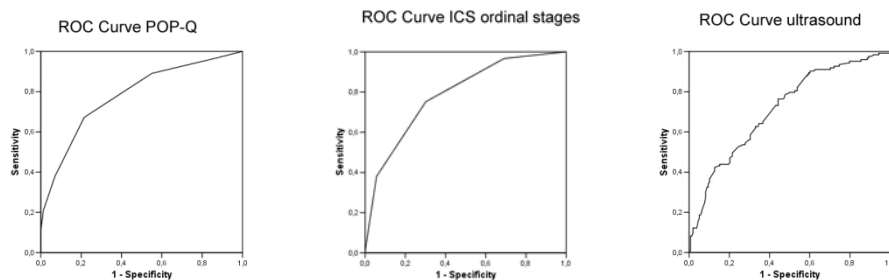


Figure 1.

ROC-curves for the probability of symptoms of pelvic organ prolapse as assessed by POP-Q, ICS ordinal stages and ultrasound staging.

Interpretation of results

In this study, the probability of prolapse symptoms with increasing degree of prolapse as assessed by three staging systems was evaluated. No differences amongst the POP-Q, the ICS ordinal stages and ultrasound staging systems have been detected in this respect. The POP-Q system was introduced as a more valid tool for the assessment of pelvic organ prolapse (3). The main rationale for expecting improved validity was the measurement of descent in centimetres instead of the four or five stages in the Baden-and-Walker or similar systems. However, to our knowledge the POP-Q has never been tested for its performance as a test in diagnosing symptomatic prolapse, as in this study.

On ultrasound staging the descent of each compartment can be measured in millimetres. However, this again does not seem to lead to a consequent improvement in prediction of prolapse symptoms. This may be due to the difference in reference line, which is the symphysis pubis in ultrasound staging and the hymen in POP-Q and ICS ordinal stages. The hymenal remnants are thought to be a relative limit for asymptomatic prolapse, whereas the symphysis pubis is not. This is particularly true for the posterior compartment. Significant descent of the rectal ampulla may be detected on ultrasound without any concomitant vaginal bulging. Although such descent may be of relevance for anorectal function, it is unlikely to lead to the sensation of a vaginal lump.

Concluding message

Prolapse staging can equally be performed by the POP-Q, the ICS ordinal stages and ultrasound staging systems as far as the discrimination between women with and without prolapse symptoms is concerned. Although the POP-Q and ultrasound staging have the theoretical advantage of measuring descent in centimetres and millimetres respectively and may be more discriminatory as regards treatment-related changes over time, this advantage is not reflected in a higher discriminatory power as regards symptoms of prolapse.

References

1. Am J Obstet Gynecol 1996;175:10–17.
2. Ultrasound Obstet Gynecol. 2004 Jan;23(1):80-92. Review.
3. Ultrasound Obstet Gynecol 2001;18:511–514.

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CLINICAL TRIAL REGISTRATION: This clinical trial has not yet been registered in a public clinical trials registry.

HUMAN SUBJECTS: This study was approved by the Sydney West Health Area, Australia and followed the Declaration of Helsinki Informed consent was not obtained from the patients.