Preoperative staging of prolapse does not correlate with symptoms and quality of life

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Abstract: Introduction. Several studies have shown minimal or no correlation with POP-Q stage and symptoms of pelvic organ prolapse (POP). This study evaluated the correlation between POP-Q stage, ordinal measurements, symptoms and quality of life (QOL) in women presenting for surgical management of POP. Methods: Forty-five women completed a preoperative questionnaire (PQOL) evaluating symptoms and QOL. These data were correlated with POP-Q stage and the ordinal measurements undertaken at the same visit. Prolapse was also categorized as mild or severe as determined by the most distal point in relation to the hymenal remnant. The best fit of data correlating QOL and anatomical severity of prolapse was established by reiterating analysis in successive 1cm increments from the hymenal remnant. Results: All women had at least stage 2 anterior prolapse and most women had coexisting apical and posterior prolapse. POP-Q stage did not correlate with symptoms and QOL. Correlations (r 0.28-0.36, p<0.05) were detected in five QOL domains when prolapse was defined as severe and Aa or Ba was ≥2 but not ≥1. Discussion: Anatomical findings, symptoms and QOL are distinct parameters that are all relevant in the evaluation of women with POP. Ordinal measurement of POP is useful in the evaluation of women presenting for surgery, however POP-Q staging may not be useful and POP-Q stage 2 is not an appropriate threshold for determining surgical outcome.

Key words: Pelvic organ prolapse, Correlation POP-Q, Symptoms, Quality of life.

INTRODUCTION

The POP-Q system published in 1996 has become the standard system of quantification of pelvic organ prolapse (POP). Experts devised POP-Q for anatomical staging based on extensive clinical experience and opinion. However, there was no attempt to relate the staging in this system to other clinical parameters, notably function. Previous studies have found only a weak correlation between anatomical findings and symptoms associated with POP with the strongest correlation between maximal descensus of the anterior compartment and the symptom of bulging and protrusion but could not define surgical failure may include many asymptomatic women. In postmenopausal women presenting for annual pelvic examination as part of the Women’s Health Initiative trial asymptomatic stage 2 POP was present in 62.9%. The stage of POP that is currently recommended to be defined as POP-Q stage 0 or 1.4 POP-Q stage 2 (maximal descent -1 to +1cm) is the critical range that defines surgical failure and this range includes what has been defined as the most discriminating point for correlation of symptoms. In postmenopausal women presenting for annual pelvic examination as part of the Women’s Health Initiative trial asymptomatic stage 2 POP was present in 62.9%. The stage of POP that is currently recommended to define surgical failure may include many asymptomatic women. POP is primarily a condition that affects quality of life (QOL) and there are now several disease-specific questionnaires that address this. Gutman et al used the Pelvic Floor Distress Inventory and Pelvic Floor Impact Questionnaire to assess symptoms of POP in a mixed group of women presenting to a gynaecology clinic,8 That study, primarily aimed at determining the impact of POP on sexual function, determined that descensus distal to the hymenal ring by 0.5cm (equivalent to Aa or Ba at +0.5) was the best predictor of symptoms of bulging and protrusion but could not detect a threshold to predict other symptoms. The primary aim of this study was to determine using the English version of PQOL (a validated POP questionnaire)9 the correlation between the POP-Q stage and QOL in women presenting for surgical management of anterior compartment vaginal prolapse. These women are symptomatic and represent the typical POP surgical workload of the practising gynaecologist.

METHODS

This was a secondary analysis of a prospective randomised trial of 45 women presenting to gynaecology units in the Central Northern Adelaide Health Service for surgical management of anterior compartment POP. The women were symptomatic and had been referred for management of anterior compartment prolapse by their local doctor, with randomisation to occur between anterior mesh and traditional colporrhaphy. Preoperative data for all women enrolled in the trial are presented. The booking gynaecologist performed POP-Q staging at the same consultation as the patient completed the PQOL questionnaire. The PQOL questionnaire is a validated POP QOL questionnaire originally in English and now validated in numerous other languages. It consists of eight domains and the raw scores for each domain are converted to a percentage with larger numbers indicating a greater adverse effect on QOL. The correlations between (1) the POP-Q staging and PQOL scores and (2) the most distal point of the prolapse measured to the nearest cm in each of the anterior, apical and posterior compartments and PQOL scores was calculated (Spearman correlation, Graph Pad Prism for Mac OS X). As there was no correlation between cardinal and ordinal POP-Q values and PQOL scores the prolapse was then categorized as either mild or severe as determined by the most distal point of the prolapse in relation to the hymenal remnant commencing at the hymenal remnant (Aa or Ba 0 - this point was chosen as there were few women with maximal descensus of the prolapse proximal to the hymenal remnant) and Spearman correlations rerun with the dichotomised data. The process was reiterated in increments of 1cm distal to the hymenal remnant until the best fit of data correlating the anatomical findings and QOL were obtained.

In addition to collecting data on QOL, the PQOL questionnaire collects data on symptoms with possible ratings of “Not applicable” “None” “A little” “Moderately” or “A lot”. These data were combined in to symptom complexes of overactive bladder, stress incontinence, urinary voiding difficulties, vaginal discomfort, bowel dysfunction and sexual dysfunction. Each of these categories was dichotomised...
as either (1) present or absent and (2) absent-mild or moderate-severe. Spearman correlations were calculated between symptoms, POP-Q and PQOL data. Approval for this study was obtained from the Ethics Committee of the Central Northern Adelaide Health Service and all participants gave written informed consent.

RESULTS

All women had stage 2 or higher anterior compartment prolapse and most women had coexisting apical and posterior compartment prolapse (Table 1). The mean (SD) age of the cohort was 61.5 (11.7) years and median parity 3 (range 1-8). Fifteen women had previous hysterectomy. Twenty-five of the thirty-six women who were sexually active reported some difficulties sexually; thirty women reported stress incontinence, forty-two overactive bladder, forty-three voiding difficulties (straining to void, slow stream or sensation of incomplete voiding). Three women whose predominant symptoms were overactive bladder reported no sensation of a vaginal bulge (each with prolapse at or beyond the hymenal remnant). There was no significant correlation between the POP-Q stage of the prolapse of any compartment and any of the eight domains of the PQOL questionnaire (Table 2). Analysis of the correlation between QOL and the most distal part of the prolapse measured in 1cm increments commencing at the hymenal remnant showed that the most critical point was +2cm, in which significant correlations were detected in five of eight domains (Table 3). However, all the significant correlations were weak or mild, with r ranging from 0.28 to 0.36. Symptoms dichotomised into absent-mild versus moderate-severe most closely correlated with QOL parameters (Table 4) and the symptoms of overactive bladder most closely correlated with QOL, though again the correlations were at best mild (r 0.39). Although forty-two women complained of symptoms of a bulge or related vaginal discomfort there was no correlation between those symptoms and the severity of the prolapse.

DISCUSSION

This study shows that PQOL domains as expected are measuring an adverse effect of POP in symptomatic women. However, in contrast to Digesu et al., we found no correlation between POP-Q stage and PQOL scores. Digesu et al devised the PQOL questionnaire and reported statistically significant, moderate correlations between POP-Q stage and QOL domains in 145 symptomatic women. Although our smaller study size is a limitation, the very low correlation coefficients (table 2) do not suggest a type II error and it is more likely that the contrasting findings are explained by differences in populations. In our study all women had been referred for surgical management of anterior compartment POP. 42% of our population had prolapse beyond stage 2 in contrast to 24% in the publication by Digesu et al. It is possible that women with POP who are electing surgery have a significant adverse effect on QOL that is independent of the stage of the prolapse. In this study the best correlation between QOL and the severity of the anatomical defect was observed when the most distal part of the prolapse was more than 1cm beyond the hymenal remnant. This suggests that the POP-Q staging system is insensitive and that surgeons would be better advised to use ordinal data to describe the anatomy.

This study found that symptoms did not correlate with POP-Q staging but did correlate somewhat with QOL. Presence of a bulge (and/or its related discomfort), voiding dysfunction and overactive bladder were the commonest symptoms in this group and of these overactive bladder had the best correlation with QOL. Three women (6.6%) with stage 2 prolapse did not complain of a bulge and were predominantly troubled by overactive bladder. We found no correlation with symptoms of a bulge and either anatomical findings or QOL, in contrast to other reports. The difference is best explained by different populations. This study has reported on a surgical population with predominantly anterior compartment prolapse and others on mixed clinical populations including symptomatic and asymptomatic women. POP-Q staging of prolapse does not relate well to function and POP-Q stage 2 does not appear to be a good choice to determine surgical failure. We found the correlation between the anatomical severity of the prolapse and QOL to be statistically significant but weak and only when the prolapse had extended more than 1cm beyond the hymenal remnant. Poor correlation between symptoms and anatomical findings is a consistent finding in the literature. 2-7 QOL questionnaires go further by semi-quantitatively measuring the effect of symptoms as opposed to just noting their presence. In symptomatic women presenting for surgery there may be no useful correlation between anatomical findings and QOL. The reason for this poor correlation is poorly understood and it creates a dilemma for surgeons and researchers. The literature on test-retest reliability suggests that both anatomical diagnoses and QOL data are reproducible. 1,13,15 The poor correlation between ‘objective’ anatomical criteria and subjective symptoms and QOL data

### Table 1. – POP-Q stages for each compartment in 45 women presenting for surgical management of anterior compartment prolapse.

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Stage 0</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior</td>
<td>0</td>
<td>0</td>
<td>26</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>Apical</td>
<td>21</td>
<td>8</td>
<td>14</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Posterior</td>
<td>11</td>
<td>13</td>
<td>21</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Table 2. – Quality of Life and Spearman correlation coefficients for PQOL domains and highest POP-Q stage of the prolapse.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Median (interquartile range)</th>
<th>Correlation with stage of prolapse (p value)</th>
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<th>Median (interquartile range)</th>
<th>Correlation with stage of prolapse (p value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>25 (6-25)</td>
<td>0.17 (0.28)</td>
<td>Personal Relations</td>
<td>50 (4-83)</td>
<td>-0.36 (0.11)</td>
</tr>
<tr>
<td>Life Affect</td>
<td>67 (33-100)</td>
<td>0.08 (0.59)</td>
<td>Emotions</td>
<td>33 (14-66)</td>
<td>0.08 (0.59)</td>
</tr>
<tr>
<td>Role Limitations</td>
<td>32 (0-66)</td>
<td>0.23 (0.13)</td>
<td>Sleep and Energy</td>
<td>33 (20-66)</td>
<td>0.28 (0.07)</td>
</tr>
<tr>
<td>Physical and Social</td>
<td>23 (7-52)</td>
<td>0.12 (0.42)</td>
<td>Severity Measures</td>
<td>25 (16-48)</td>
<td>0.21 (0.17)</td>
</tr>
</tbody>
</table>

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could be explained by factors that we tend not to measure such as behavioural traits of the woman, her personal resilience and ability to cope, and the effect that family, friends and also perhaps her medical practitioner may have on her perception of her health. Using an analogy, perception of pain from similar stimuli (e.g. an operation such as a routine hysterectomy) varies widely amongst individuals and can be modified by expectation. In a similar manner it is likely that the perception of discomfort from a prolapse of a defined magnitude will vary widely and that personal resilience and the influence of others may serve to either alleviate or exacerbate this.

In conclusion, in women presenting for surgical management of POP there appears to be no useful relationship between anatomical findings, symptoms and QOL. All are important parameters that measure different things - how a prolapse looks, how it feels and how those feelings effect the woman’s life. In contrast to the opinion expressed in the original POP-Q paper it appears to be more useful for surgeons to express the anatomy of a prolapse using ordinal descriptors rather than POP-Q staging. In particular, POP-Q stage 2 is not a useful discriminator between surgical success and failure. However, most clinical trials or retrospective research will not be sufficiently powered to use continuous (ordinal) data in analysis without making some arbitrary decision to dichotomise between “success” and “failure”.

ACKNOWLEDGMENTS

Drs Chris Barry and Alphonse Roex contributed to patient recruitment and data collection.

REFERENCES


Funding: This study was in part funded by a grant from the Australian Gynaecological Endoscopy Society (AGES)

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