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Original Research Article

Evaluation of intersystem agreement between standard pelvic organ prolapse quantification system and simplified pelvic organ prolapse scoring system

Archana G. Singh, Varsha Rani Choudhary*, Vineeta Ghanghoria, Kirti Patel

Department of Obstetrics and Gynecology, NSCB Medical College and Hospital Jabalpur, Madhya Pradesh, India

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***Correspondence:**
Dr. Varsha Rani Choudhary,
E-mail: varsha89c@gmail.com

ABSTRACT

Background: Pelvic organ prolapse (POP) is one of the most common gynaecological problem encountered worldwide. The POPQ has become the most commonly used prolapse staging system since its introduction (1996). In spite of having merits to it, POP-Q has not acquired a widespread acceptance. International Urogynaecological Association (IUGA) Standardization of Terminology Committee has devised a simplified version S-POP classification system based on the ordinal stages of the POPQ. The objectives of present study are to determine the intersystem agreement between the standard POPQ and S-POP classification system of pelvic organ prolapse and to propose a user-friendly classification system.
Methods: This prospective observational blinded study was conducted in the department of Obstetrics and Gynaecology, NSCB Medical College and Hospital, Jabalpur (M.P.) from March 2015-August 2016. 125 women underwent two separate pelvic examinations POPQ and S-POP, by two groups of gynaecologists at each site. Results were compared and analysed using appropriate statistics.
Results: Out of 125 women 54 (43.2%) were in age group 41-50 years. 79 (63.2%) were post-menopausal. 102 (81.4%) were more than third parity. 107 (85.6%) had home delivery. 119 (95.2%) had symptom of something coming out of vagina. The weighted Kappa statistics for the intersystem agreement of S-POP system with POPQ system for overall stage was 0.82, 0.61 for both anterior and posterior vaginal wall, 0.9 for cervix and 0.87 for posterior fornix/cuff.
Conclusions: There is significant agreement between the POPQ and S-POP classification systems of POP.

Keywords: Pelvic organ prolapse, Simplified pelvic organ prolapse scoring system, Standard pelvic organ prolapse

INTRODUCTION

Pelvic organ prolapse (POP) is the protrusion of pelvic organs and their associated vaginal segments into or through the vagina. It is one of the most common gynaecological problem encountered worldwide, arising often as a result of pelvic floor relaxation coupled with weakness of pelvic support connective tissue, muscles and nerve damage.[1] Historically, the severity of prolapse was graded using a variety of classification systems which were imprecise and not easily reproducible.[2] For example the systems of Beecham, Baden and Walker, Shull et al and Porges.[3-7]

International Continence Society (ICS), the American Urogynecologic Society (AUGS) and the Society for Gynaecologic Surgeons (SGS) introduced the Pelvic Organ Prolapse Quantification (POPQ) system in 1996 to evaluate therapeutic measures in a uniform, standardized way.[2] POPQ defines prolapse by measuring the descent of specific segments of the reproductive tract during Valsalva manoeuvre, relative to a fixed point, the hymen.

It describes anatomic findings of POP and identifies nine locations in the vagina and vulva in centimeters.[7] Characteristically it is specific, objective and assess prolapse at multiple vaginal sites.

Although several studies have examined the inter-observer agreement of the POPQ system much remains unclear about its reproducibility, complexity, inconsistencies between users. This has made its widespread acceptance and use limited by the practicing clinicians.[8-11] In response to this, International Urogynecological Association (IUGA) Standardization of Terminology Committee has devised a simplified version of POPQ (S-POP) classification system that retains the ordinal stages of POP-Q system but simplifies terminology and reduces number of points measured, for easy translation into daily clinical practice.[12,13]

Hence with this aim the present study was planned to determine the agreement between standard POPQ system and simplified POP scoring system and to propose a user-friendly scoring system.

METHODS

This was a prospective observational blinded study conducted in the department of Obstetrics and Gynaecology, Netaji Subhash Chandra Bose Medical College and Hospital, Jabalpur (M.P.) from March 2015 - August 2016. 125 women qualified inclusion criteria (something coming out of vagina, pressure symptoms, urinary/faecal incontinence and digital reposition, pelvic fullness and backache) recruited for the study. Approval from Institutional Ethical Board and written informed consent from women was obtained. After gathering demographic information, women were asked to empty their bladder. Two separate pelvic examinations, under lithotomy position, after Valsalva manoeuvre, were subjected to the women, by two groups of gynaecologists at each site. One examination being standard POPQ and another S-POP. Both examinations were randomised and conducted on the same day of visit.

For POPQ examination six points (Aa, Ba, C, D, Ap, Bp) were measured in centimetres - proximal to the hymen (negative number) and distal to the hymen (positive number) with the plane of hymen representing zero

- Aa: on anterior vaginal wall 3 cm proximal to external urethral meatus.
- Ap: on posterior wall 3 cm proximal to hymen.
- Ba: most distal/dependent part of any portion of anterior vaginal wall just anterior to vaginal cuff/ anterior lip of cervix.
- Bp: most distal/dependent part on posterior vaginal wall.
- C: most distal edge of cervix.
- D: posterior fornix or pouch of Douglas.
- Genital hiatus (GH), perineal body (PB) and total vaginal length (TVL) were other measurements.
- GH: from middle of external urethral meatus to posterior hymen.
- PB: from posterior margin of genital hiatus to mid anal opening.
- TVL: greatest depth of vagina in centimeters.

Barring TVL all parameters were measured during maximal straining. Each segment was then given an ordinal stage.

- Stage 0: no prolapse (apex can descend as far as 2cm relative to TVL).
- Stage 1: most distal portion of prolapse descends to a point greater than 1 cm above hymen.
- Stage 2: maximal extent of the prolapse is within 1 cm of hymen (outside or inside vagina).
- Stage 3: prolapse extends more than 1 cm beyond hymen but no more than within 2 cm of TVL
- Stage 4: complete eversion, or extension to within 2 cm of the TVL.

For S-POP, four areas were examined - anterior(Aa), posterior(Ba) vaginal walls, cervix(C) and apex (D) without use of any measuring device. Only estimates were noted and stage of each segment was recorded.

- Stage 1: given point ≥1 cm above hymen.
- Stage 2: given point descends to introitus, from 1 cm above to 1 cm below hymen.
- Stage 3: given point ≥1 cm past hymen.
- Stage 4: complete vaginal vault eversion/procidentia

RESULTS

Out of 125 women 54 (43.2%) were in age group 41-50 years. 79 (63.2%) were postmenopausal. Majority of women 102 (81.4%) were more than third parity. 107 (85.6%) had home delivery. 119 (95.2%) presented with sense of something coming out of vagina. The weighted Kappa statistics for the intersystem association of S-POP scoring system were 0.82, for overall stage (Table 3), 0.61for anterior and posterior vaginal wall each (Table 4 and 5), 0.9 for cervix (Table 6) and 0.87 for posterior fornix (Table 7). There was excellent agreement for overall stage, cervix and posterior fornix and a substantial association for anterior wall and posterior wall.

Categorical variables were summarized in frequency and percent distribution. For intersystem agreement Kappa statistics applied. K value interpreted as follows.

Table 1: K value.

Value of K	Strength of agreement
<0.20	Poor
0.21-0.40	Fair
0.41-0.60	Moderate
0.61-0.80	Good
0.81-1.00	Excellent

Table 2: Distribution pattern of stages.

Stages	POPQ	S-POP
1	5 (4%)	6 (4.8%)
2	15 (12%)	21 (16.8%)
3	67 (53.6%)	62 (49.6%)
4	38 (30.4%)	36 (28.8%)
Total	**125**	**125**

Table 3: 4 by 4 contingency for agreement in overall staging.

	POP-Q					
	Stage	**I**	**II**	**III**	**IV**	
S-POP	I	5	1	0	0	6
	II	0	14	7	0	21
	III	0	0	55	7	62
	IV	0	0	5	31	36
		5	15	67	38	125

Weighted Kappa = 0.802

Table 4: 4 by 4 contingency for agreement in anterior vaginal wall.

	POP-Q					
	Stage	**I**	**II**	**III**	**IV**	
S-POP	I	6	6	1	0	13
	II	0	13	18	0	31
	III	0	0	30	0	30
	IV	0	0	24	27	51
		6	19	73	27	125

Weighted Kappa = 0.600

Table 5: 4 by 4 contingency for agreement in posterior vaginal wall.

	POP-Q					
	Stage	**I**	**II**	**III**	**IV**	
S-POP	I	15	7	1	0	23
	II	1	14	22	0	37
	III	0	0	29	4	33
	IV	0	0	16	16	32
		16	21	68	20	125

Weighted Kappa = 0.619

Table 6: 4 by 4 contingency for agreement in cervix.

	POP-Q					
	Stage	**I**	**II**	**III**	**IV**	
S-POP	I	10	1	0	0	11
	II	0	16	1	0	17
	III	0	0	54	6	60
	IV	0	0	3	34	37
		10	17	58	40	125

Weighted Kappa = 0.905

Table 7: 4 by 4 contingency for agreement in posterior fornix/cuff.

	POP-Q					
	Stage	**I**	**II**	**III**	**IV**	
S-POP	I	17	1	0	0	18
	II	0	18	0	0	18
	III	1	0	55	0	56
	IV	0	1	15	19	35
		18	20	70	19	125

DISCUSSION

POP-Q is an objective site-specific system for describing and staging POP in women. It involves measurements of various points representing anterior, apical and posterior vaginal prolapse, using the hymen as a landmark.

This system is very complete with the ability to document small degree of change or variation within or between patients and therefore has become the gold standard for research into pelvic organ support defects. Despite merits to it and being a conventional system, POPQ has not widely accepted due to its complexity, time consuming, inconsistencies between its users.[11]

Simplified POPQ system has been developed and recommended to overcome the difficulty and complexity of POPQ system. It has reduced number of points to be measured, stage 0 being omitted and use of ruler as well.[11]

Out of 125 patients 54 (43.2%) were in age-group of 41-50 years with a mean of 47.4 yrs. It was little lower as compared to the studies by Raizada et al and Manonai et al. POP affects all ages and have negatively impacts their quality of life.[2,11,13] 102 (81.4%) had parity of third or higher order which is a well-known risk factor for POP. 13,14, 107 (85.6%) patients had history of home delivery which is similar to the results Ghumanga et al.[15] 119 women (95.2%) presented with symptom something coming out of vagina. Elvis et al reported the similar findings.[16]

In our study in POPQ system prolapse stage 1,2,3 and 4 were demonstrated in 5 (4%), 15 (12%), 67 (53.6%) and 38 (30.4%) women respectively. The corresponding distribution were 6 (4.8%), 21 (16.8%), 62 (49.6%) and 32 (28.8%). The weighted kappa statistics for intersystem agreement of S-POP was 0.80 for overall stage suggesting very good agreement and is comparable to study by Swift et al.[12] There was moderate to good agreement (0.61) for both anterior and posterior vaginal walls. Studies by Manonai et al and Raizada et al showed better results (0.71 and 0.86 respectively).[11,13] There was excellent agreement for cervix (0.9) and posterior fornix (0.87) which is in congruent to the studies.[11,13] There was good agreement between the two classification systems of POP.

Thus, we found in our study that POPQ results can be achieved easily and quickly with S-POP scoring system. However, downside with this classification system is that it not very site specific unlike POPQ thus limiting its use in describing complex prolapse and for research purpose. Although S-POP have shown a little less agreement in present study for anterior and posterior wall prolapse but can still be use as a simple and comprehensive tool for POP.

CONCLUSION

There was significant agreement between results of POPQ and S-POP quantification systems of pelvic organ prolapse. S-POP being simple, less time consuming, having good association with POPQ, would be more practical in daily clinical practice.

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