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RELIABILITY OF VULVAL PELVIC FLOOR MEASUREMENTS TO ASSESS PELVIC FLOOR INTEGRITY

Hypothesis / aims of study

Pelvic organ prolapse (POP) carries a significant physical and psychological burden for women, and it a massive cost burden on healthcare systems[1]. There is evidence that both the size of genital hiatus, and damage to the pelvic floor during childbirth has an impact on the development of prolapse. It has been noted that the size of the urogenital hiatus predicts recurrence of vaginal prolapse after prolapse surgery [2]. We therefore aimed to validate measurement of the genital hiatus using a manual technique.

Study design, materials and methods

This cross-sectional study enrolled women seen in urogynaecology clinics, general gynaecology clinics, pelvic floor clinics and urodynamics clinics. Ethical approval was granted from a regional committee. We collected demographic details and POP-Q scores. Two observers independently took all other measures. The size of genital hiatus was measured in the antero-posterior diameter (AP diameter- distance from lower border of pubic symphysis to palpable margin of firm, dense connective tissue of perineal body) in the sagittal plane and in the maximum transverse diameter of the levator ani (distance between medial borders of levator ani). We took measurements at the fourchette of the distance between loose skin and firm dense connective tissue of the perineal body (SM), and of the distance between hymenal remnants (HH). All women were instructed to perform valsalva manoeuvre during the examination and vaginal examinations were conducted in left lateral position. Bland-Altman plots and intra class correlation coefficients were calculated to validate the inter-observer reliability using SPSS V23.

Results

20 women participated in the inter-observer study, with a mean age of 51.8(21-83 yrs), mean BMI of 26(19.6-34.5), and median parity of 2(range 1-5). All had achieved vaginal deliveries apart from 1 nulliparous woman. 11(55%) were menopausal and 6(30%) had documented perineal tears. The ethnicity varied from 3(15%) being Afro-Caribbean, 12(60%) being White, 5(25%) being Asian. 7(35%) were stage 0, 5(25%) were stage 1, 7(35%) were stage 2 and 1(5%) was stage 3 on POP-Q classification. All measurements were checked for skewness and kurtosis with the Kolmogorov-Smirnov test, showing the data was normally distributed. Bland-Altman plots revealed no significant systematic error between observers, or across the range of measures, except for HH. Differences between observers are shown in table 1, with corresponding ICCs in table 2.

	Mean difference/ cm	SD	Upper Limit (CI)	Lower Limit (CI)	p-value
AP diff	-0.075	0.494	0.156	-0.306	0.505
Transverse diff	0.150	0.564	0.414	-0.114	0.249
SM diff	-0.025	0.101	0.022	-0.072	0.287
HH diff	-0.170	0.307	-.0259	-.3141	0.023

Table 1: Differences (diff) in measures between observers

	Intraclass correlation (ICC)	95% Confidence Interval		P-value
		Lower Bound	Upper Bound	
AP dia	0.947	0.866	0.979	<.0001
Transverse dia	0.888	0.724	0.956	<.0001
SM distance	0.985	0.963	0.994	<.0001
HH distance	0.930	0.790	0.974	<.0001

Table 2: ICC for measurements of diameters (dia) and distances

Interpretation of results

The Bland-Altman plots showed good agreement across the range of measures, with excellent ICCs for all measures. The HH measure between hymenal remnants showed some evidence of systematic error, which might be improved with further training of observers.

Concluding message

The measurements are easy to perform, not time consuming and have good inter-observer reliability. These simple measurements could be used clinically in assessments of the pelvic floor, and may predict the outcome of prolapse treatments.

References

1. Eur J Obstet Gynecol Reprod Biol, 2009. 144(2): p. 177-81.
2. Obstet Gynecol, 1998. 91(3): p. 364-8.

Disclosures

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