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COMPARISON BETWEEN TRANSABDOMINAL ULTRASOUND AND PERINEOMETRY FOR ASSESSMENT OF PELVIC FLOOR MUSCLE CONTRACTION IN WOMEN WITH STRESS URINARY INCONTINENCE

Hypothesis / aims of study

Pelvic floor muscles (PFM) dysfunction has been commonly associated with urinary incontinence (1). Evaluation of a correct PFM contraction involves assessment of the ability to elevate the pelvic floor. Transabdominal (TA) ultrasound and perineometry has been currently used by physical therapists to assess PFM function (2,3). Previous studies have shown significant correlation between TA ultrasound and digital palpation, between TA and transperineal ultrasound, between transperineal ultrasound and digital examination, between digital examination and perineometry or between transperineal ultrasound and perineometry for assessment of pelvic floor contraction. However, no study has directly compared TA ultrasound measurement with vaginal perineometry, as two simple clinical methods that evaluate different aspects of PFM activity. The purpose of this study was to investigate the agreement between perineometry and TA ultrasound measurement for assessment of PFM contraction and to evaluate the reliability of the measurements in women with urinary incontinence.

Study design, materials and methods

A descriptive correlational design was utilized to describe the relationship between variables. A total of 28 women stress urinary incontinence participated in the study. Vaginal squeeze pressure using a perineometer (cm H2O) and the amount of bladder base movement on TA ultrasound (mm) was measured. Subjects performed three maximal contractions with no movement of the pelvis or low back region and the mean value of three contractions was taken for the analysis. Pearson correlation coefficient was used to determine the correlation between the variables. The intra-class correlation coefficient (ICC) was used to assess intra-tester reliability of the measurements.

Results

The (Mean ±SD) scores for TA ultrasound measurement and perineometry were (3.76 ± 3.1) and (19.27 ± 12.3) respectively. The ICC values were 0.92 and 0.87 for TA ultrasound measurement and perineometry respectively. It indicates high intra-tester reliability for the measurements. Pearson correlation analysis showed a significant correlation between the measurements taken using TA ultrasound and perineometer for PFM contraction ($r = 0.72$, $P < 0.0001$, 95% CI for r: 0.47 to 0.86). Figure 1 depicts the scatter diagram for the correlation between TA ultrasound and vaginal squeeze pressure measurements

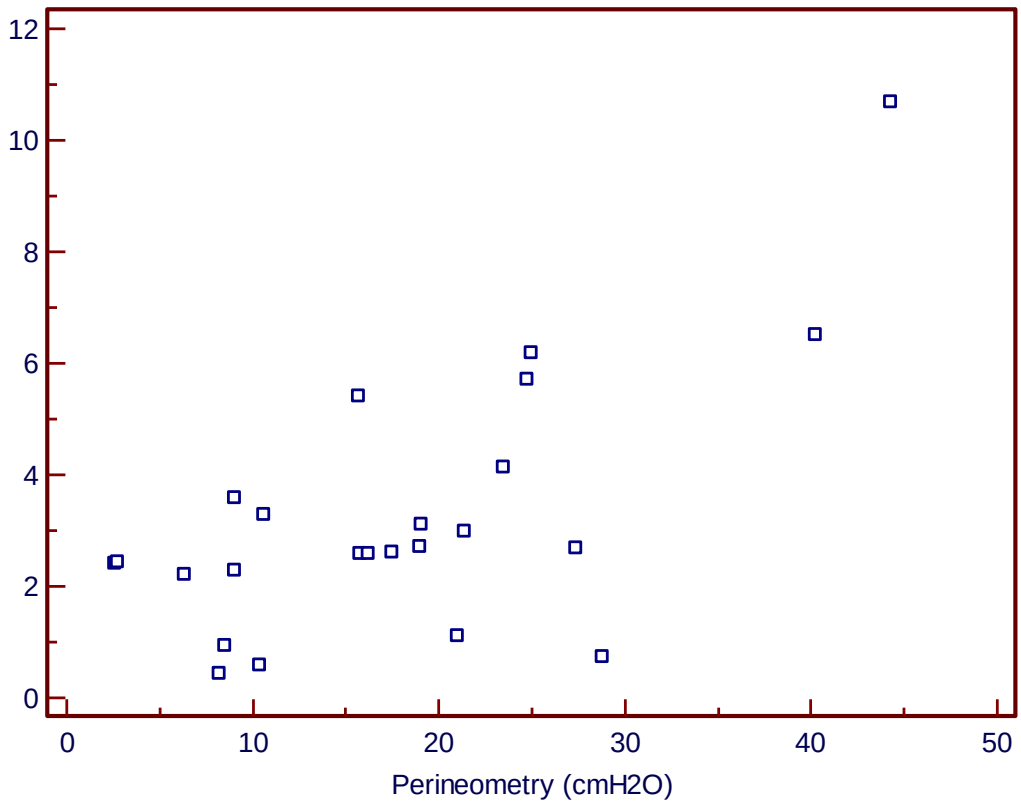
Interpretation of results

TA ultrasound measurement for PFM assessment is comparable with perineometry and clinicians can use them in their practice.

Concluding message

In conclusion, the results of this study indicate a high agreement between TA ultrasound and perineometric scoring of PFM contraction and show high reliability for both methods.

Figure 1. Scatter diagram for the correlation between TA ultrasound and perineometry



TAUS= Transabdominal Ultrasound

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Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**