

CORRELATION OF Q-TIP VALUES AND POINT AA IN STRESS INCONTINENT WOMEN

Hypothesis / Aims of study

To determine the relationship between POP-Q point Aa and maximum urethral straining angle (Q-tip_{strain}) and if the relationship is affected by pelvic organ prolapse in a cohort of women with stress predominant urinary incontinence.

Study design, materials and methods

Maximum urethral straining angles and Aa measurements were obtained from 655 women with stress predominant urinary incontinence and urethral hypermobility who were enrolled in a multicenter randomised surgical trial comparing the retropubic urethropexy and the sling procedures. Respective Institutional Review Boards approved this study. Urethral hypermobility was measured with the Q-tip test, using a goniometer, and was defined by a resting angle or displacement angle at maximum valsalva effort, of >30° from the horizontal plane. Point Aa was measured relative to the hymen in the midline of the anterior vagina with a centimeter ruler with the subject in the supine position, straining maximally. This point of the POP-Q score represents the urethrovesical junction (UVJ). Pearson correlations and linear regression analyses were performed on baseline measures obtained prior to surgery. Q-tip values were treated as continuous variables and point Aa as ordinal data.

Results

Subjects had a mean age of 51±10 years and mean BMI of 30±6.5 kg/m². Seventy three percent were Caucasian, 11% Hispanic and 7% black. The median for point Aa was -1 cm (range -3cm to +3cm) and the median Q-tip_{strain} value was 60° (range 10° to 130°). The distribution of point Aa and Q-tip_{strain} are displayed below.

Point Aa	Equal to or above -2cm	-1cm and more distal	
Mean Q-tip _{strain}	51.5° ± 14.6°	64° ± 18.6°	P=<0.0001
Frequency*	N=190 (29%)	N=454 (69%)	

* 11 women (2%) had a recorded Aa value of -1.5cm

The distribution of overall stage of prolapse was 25% stage 0/I, 59% stage II, 16% stage III/IV. Fifteen percent reported prior anterior vaginal or incontinence surgery. Point Aa and Q-tip_{strain} were weakly correlated ($\rho=0.34$, $p<0.0001$). Results of a linear regression show that as maximum straining angle increases 10°, Aa increases 0.26 cm ($p<0.0001$). When POP-Q stage was held constant in the regression model, as Q-tip_{strain} increases 10°, Aa increases only 0.14 cm ($p<0.0001$). Therefore, the positive correlation between Aa and Q-tip_{strain} is not independent of prolapse stage. Age and prior anterior vaginal wall or incontinence surgery had no significant effect on the correlation between Aa and Q-tip_{strain} ($p=0.07$, $p=0.64$ respectively).

Interpretation of results

There is a weak relationship between point Aa and Q-tip_{strain} angle in this sample of stress incontinent women. As the degree of urethral hypermobility increases, Point Aa becomes more prolapsed. However, one value does not predict the other. Twenty-nine percent of our cohort of stress incontinent women with urethral hypermobility appeared to have good UVJ support by visual inspection, with a point Aa of -2 or above. Our findings suggest that using the criterion of POP-Q point Aa equal or distal to -1cm to identify women with urethral hypermobility will exclude as many as 31% who meet the standard by Q-tip test.

Concluding message

Point Aa of the POP-Q system provides the convenience of a non-instrumented measure of UVJ rotational descent. At values of -1 and more distal, point Aa can serve as a surrogate measure for the Q-tip_{strain} angle in identifying urethral hypermobility in stress incontinent women. When clinical care has the potential to be influenced by the presence or absence of urethral hypermobility, a Q-tip test should be performed in women whose point Aa value is proximal to -1cm.

FUNDING: National Institutes of Health