

**STRIATED URETHRAL SPHINCTER ACTIVITY DOES NOT ALTER URETHRAL PRESSURE DURING FILLING CYSTOMETRY****Aims of Study**

To determine the relationship between urethral pressure and the activity of the striated urethral sphincter during bladder filling.

**Methods**

Women who underwent multichannel urodynamic testing with concentric needle electromyography (EMG) of the striated urethral sphincter between December 2000 and February 2002 were studied. Raw EMG signals were processed by a Nicolet Viking IVp EMG instrument (Nicolet Instrument Corporation, Madison, WI) equipped with automated motor unit analysis software programs. Quantitative EMG software was used to analyze the electrical activity of the urethral sphincter during filling cystometry. Scatterplots and Spearman correlations were used to investigate the relationship between urethral pressure and quantitative EMG values at 300ml and maximum cystometric capacity (MCC). The sign test was used to evaluate differences between UP and quantitative EMG before and during filling.

**Results**

One hundred women with a mean age of 60 years (range 22-82) and a median parity of 3 children (0-8) were studied. Ninety-one percent of women were Caucasian, 6% were Hispanic, and 3% were African-American. Most women (79%) were postmenopausal, and 68% of those were on hormone replacement therapy. Fifty-one percent of the women had urodynamic stress incontinence, 31% had mixed incontinence, and 3% had detrusor overactivity. Fifteen women did not demonstrate urinary incontinence on testing. Mean MCC and maximum urethral closure pressure were 482ml (300-900) and 61cmH<sub>2</sub>O (4-180), respectively. Quantitative EMG values increased significantly at 300ml and MCC, however there was no significant increase in urethral pressure.

	300ml	MCC	P Value
Δ Urethral pressure	3.2cmH <sub>2</sub> O ± 1.3 SEM	1.2 cmH <sub>2</sub> O ± 1.4 SEM	NS
Δ Quantitative EMG	11.0μV ± 0.8 SEM	13.4μV ± 1.0 SEM	<.0005

There was no correlation between change in urethral pressure and motor unit activation on quantitative EMG at 300cc or MCC. Fifty-six women had no change or a decreased urethral pressure at MCC, yet all but one of these woman had increased motor unit activation on quantitative EMG. Maximum urethral closure pressure was significantly higher in pre-menopausal women (p<.0005), however menopausal status was not related to quantitative EMG values.

**Conclusion**

Urethral pressure does not increase during filling cystometry despite increased activity of the striated urethral sphincter, suggesting that urethral pressure change does not reflect the integrity of the striated urethral sphincter.