

URINATING IN THE STANDING POSITION: A FEASIBLE ALTERNATIVE TO DECREASE POSTVOID RESIDUAL URINE VOLUME FOR WOMEN WITH DETRUSOR UNDERACTIVITY AND POSITIVE COUGH STRESS TEST

Hypothesis / aims of study

The International Continence Society (ICS) defined detrusor underactivity (DU) as “a contraction of reduced strength and/or duration, resulting in prolonged bladder emptying and/or failure to achieve complete bladder emptying within a normal time span”. Patients with DU are unable to contract the muscles sufficiently, which lead to incomplete bladder emptying and increasing postvoid residual urine volume (PVR) amount, may cause recurrent urinary tract infection, even hydronephrosis. Many patients need regular clean intermittent self-catheterization (CISC). However, long-term CISC may increase the possibility of urinary tract infection. Our previous study has proven the feasibility of urinating in the erect position for women. To the best of our knowledge, research about urination at different positions in patients with DU is lacking. The purpose of this prospective study is to compare the results of uroflowmetry between the novel standing position and traditional sitting position for female patients with DU.

Study design, materials and methods

A total of 18 women were recruited with a mean age of 54.0 ±6.8 years who were diagnosed as DU. All patients suffered from voiding difficulty, post-void residual urine amount over 200ml and ever performed regular CISC or long-term Foley catheter indwelling. The cough stress test was performed in the standing position. Participants used a homemade auxiliary appliance to collect urine and drain it forward while stand voiding. (Fig.1) Uroflowmetric data, including voided volume, maximum urinary flow rate (Q_{max}) were recorded. Postvoid residual urine volume (PVR) was detected using an ultrasound bladder scanner. Participants completed a questionnaire to evaluate their attitude toward stand voiding and using the auxiliary device.

Results

The Q_{max} showed significant improvement while stand voiding compared with sitting position (13.2 vs. 6.9 ml per second, P < 0.05), however, the PVR were not statistically different (173.8 ± 56.2 vs 202± 93.7 ml, p> 0.05) We further analyzed the results of patients with positive (n=10) and negative (n=8) cough stress test. The maximal flow rates (15.6± 7.2 vs 5.7±6.3, P< 0.05) and post-void residual urine volumes (125.6 vs 237.4 ml, P< 0.05) were all significant improved while standing in the positive cough stress test group. Eighty percent of them didn't need CISC by urinate in the standing position. All expressed the willingness to urinate while standing position in positive cough stress test group but only 50% in negative group.

Interpretation of results

The Q_{max} showed significant improvement while standing compared with sitting position in both positive and negative cough stress test group. However, significant improvement of post-void residual urine volumes only observed in positive cough stress test group. The cough stress test is usually performed in the standing position, it is possible that women with DU and stress urinary incontinence are easier to empty urine in the erect position.

Concluding message

Urinate in the Standing Position is a feasible option for women with UD and positive cough stress test to decrease postvoid residual urine volume



Figure. Patients used homemade auxiliary appliances for collecting urine from the urethra and draining it forward when standing

References

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