

## COMPARATIVE ANALYSIS OF PARAMETERS TO EVALUATE THE SEVERITY OF URINARY INCONTINENCE: A PROSPECTIVE STUDY

### Hypothesis / aims of study

Appropriate evaluation is necessary to broaden understanding of the relationship of parameters of urinary incontinence including 1-hour pad test, Q-tip test, questionnaires and urodynamic results [1]. The aim of this study is to investigate correlation of urinary incontinence with evaluation tools of 1-hour pad test, Q-tip test, urodynamics and questionnaires in a prospective, observational study [2,3].

### Study design, materials and methods

Patients with urinary incontinence were interviewed with questionnaires of International Consultation on Incontinence Questionnaire – Urinary Incontinence, (ICIQ-UI), Patient Perception of Bladder Condition (PPBC) and King's Health Questionnaire (KHQ). They underwent urodynamic tests with 1-hour pad and Q-tip tests to evaluate urethral, bladder and sphincter function. Database was prospectively collected.

### Results

A total of 140 patients (25 males and 115 females) were included. The mean age was  $59.4 \pm 10.3$  years. Urinary incontinence showed stress-related type (37 cases), urgency-related type (3 cases), and mixed type (93 cases). The questionnaires showed strong degree of correlation between ICIQ-UI and PPBC ( $r = 0.620$ ,  $P < 0.001$ ), ICIQ-UI and KHQ ( $0.218 < r < 0.629$ ,  $P < 0.001$ ) and KHQ and PPBC ( $0.198 < r < 0.650$ ,  $P < 0.001$ ). Q-tip test showed no significant correlation with the questionnaires, the pad test and urodynamic results.

The correlation between each parameter was shown in Fig 1. (1) The pad test showed significant correlation of role limitations ( $r = 0.297$ ,  $P = 0.002$ ), physical limitations ( $r = 0.198$ ,  $P = 0.043$ ), social limitations ( $r = 0.255$ ,  $P = 0.007$ ), emotions ( $r = 0.272$ ,  $P = 0.004$ ), sleep/energy ( $r = 0.343$ ,  $P < 0.001$ ), and severity measures ( $r = 0.251$ ,  $P = 0.009$ ) in the KHQ. Relationships showed no significant correlation with the pad test. (2) The pad test showed negative correlation with valsalva-related leak pressure point (VLPP,  $r = -0.270$ ,  $P = 0.007$ ) and cough-related leak pressure points (CLPP,  $r = -0.271$ ,  $P = 0.010$ ). (3) PPBC showed mild-to-moderate correlation with the pad test ( $r = 0.283$ ,  $P = 0.002$ ), detrusor pressure at maximal flow ( $r = -0.220$ ,  $P = 0.016$ ), VLPP ( $r = -0.359$ ,  $P < 0.001$ ) and CLPP ( $r = -0.207$ ,  $P = 0.044$ ). (4) Urodynamic results showed that maximal cystometric capacity showed negative correlation with role limitations ( $r = -0.227$ ,  $P = 0.010$ ) and emotions ( $r = -0.178$ ,  $P = 0.044$ ). Bladder compliance showed negative correlation with role limitations ( $r = -0.223$ ,  $P = 0.013$ ) and relationships ( $r = -0.179$ ,  $P = 0.042$ ). Closing pressure showed moderate degree of correlation with role, physical, social limitations and emotions. VLPP showed moderate degree of negative correlation with all KHQ factors. (5) ICIQ-UI showed weak correlation with the pad test ( $r = 0.199$ ,  $P = 0.037$ ). (6) ICIQ-UI showed significant correlation with closing pressure ( $r = -0.438$ ,  $P = 0.001$ ), VLPP ( $r = -0.430$ ,  $P < 0.001$ ), and bladder trabeculation ( $r = 0.181$ ,  $P = 0.039$ ). (7) Maximal urethral closing pressure (MUCP) was positively correlated with VLPP ( $r = 0.243$ ,  $P = 0.009$ ) and CLPP ( $r = 0.330$ ,  $P = 0.001$ ).

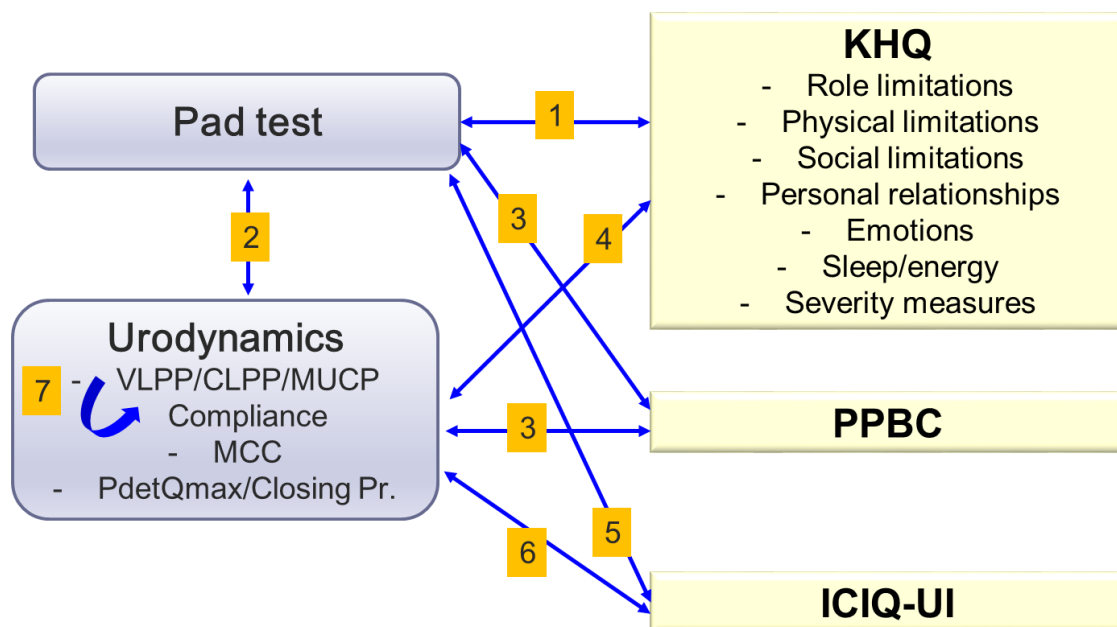
### Interpretation of results

Urinary incontinence negatively affect various aspects of daily lives. The questionnaires, pad test, and urodynamic tests can show significant correlations of urinary incontinence.

### Concluding message

The pad test and urodynamic results of patients with urinary incontinence showed significant correlation with the questionnaires. Q-tip test showed no role to evaluate the status of incontinence.

# Fig 1. Correlation diagram



## References

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## Disclosures

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