PATHOPHYSIOLOGICAL CORRELATES OF SUBJECTIVE MEASURES OF SYMPTOM SEVERITY FOR STRESS URINARY INCONTINENCE

Hypothesis / aims of study
To explore the associations of subjective measures of symptom severity for SUI with the risk factors and objective features relating to female SUI pathophysiology. Our hypothesis is that subjective measures of symptom severity for stress urinary incontinence (SUI) may bear no relations with the relevant risk factors and pathogenesis as a consequence of lifestyle adaptation.

Study design, materials and methods
We retrospectively reviewed our urodynamic database and identified 707 women with documented urodynamic stress incontinence. Clinical data included demographic information, symptom questionnaires, pelvic examination, 1-hour pad test, urodynamic study, and ultrasound cystourethrogram. The symptom questionnaires consisted of questions regarding lower urinary tract symptoms (physical activity severity and bothersome severity) and also a self-completed quality of life questionnaire, including short forms of the Urogenital Distress Inventory (UDI-6) and Incontinence Impact Questionnaire (IIQ-7). The subjective assessment of severity was compared with risk factors as well as morphological and functional objective measures of SUI.

Results
Figure 1 displays the distributions of absolute and percentage weight gain on 1-hour pad test according to physical activity severity and bothersome severity.

I. Associations among subjective severity measures and 1-hour pad tests.

Table 2. Agreement among subjective and semi-quantitative measures of severity of stress urinary incontinence (n = 707)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Physical activity severity</th>
<th>Bothersome severity</th>
<th>UDI-6 sum score</th>
<th>IIQ-7 sum score</th>
<th>1-hour pad test weight gain amount</th>
<th>1-hour pad test weight gain percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical activity severity</td>
<td>r = 0.20**</td>
<td>r = 0.26*</td>
<td>r = 0.36*</td>
<td>r = 0.40**</td>
<td>r = 0.12</td>
<td>r = 0.13</td>
</tr>
<tr>
<td>Bothersome severity</td>
<td>r = 0.36*</td>
<td>r = 0.40**</td>
<td>r = 0.49**</td>
<td>r = 0.15*</td>
<td>r = 0.25*</td>
<td>r = 0.25*</td>
</tr>
<tr>
<td>UDI-6 sum score</td>
<td>r = 0.26*</td>
<td>r = 0.40**</td>
<td>r = 0.49**</td>
<td>r = 0.19*</td>
<td>r = 0.24*</td>
<td>r = 0.26*</td>
</tr>
<tr>
<td>IIQ-7 sum score</td>
<td>r = 0.26*</td>
<td>r = 0.49**</td>
<td>r = 0.76**</td>
<td>r = 0.23*</td>
<td>r = 0.25*</td>
<td>r = 0.26*</td>
</tr>
<tr>
<td>1-hour pad test weight gain amount</td>
<td>r = 0.12</td>
<td>r = 0.16*</td>
<td>r = 0.23*</td>
<td>r = 0.34*</td>
<td>r = 0.95**</td>
<td>-</td>
</tr>
<tr>
<td>1-hour pad test weight gain percentage</td>
<td>r = 0.13</td>
<td>r = 0.16*</td>
<td>r = 0.25**</td>
<td>r = 0.29*</td>
<td>r = 0.95**</td>
<td>-</td>
</tr>
</tbody>
</table>

*Possible scores 0 to 18 with higher scores indicating worse perception of quality of life
**Possible scores 0 to 21 with higher scores indicating worse perception of quality of life
*, P < 0.05; **, P < 0.01

II. Associations with relevant risk factors and functional and morphologic features relating to stress urinary incontinence.
III. Effect of pelvic organ prolapse on morphologic and functional associations of subjective and semi-quantitative measures.

Interpretation of results

In a sample of women with the diagnosis of urodynamic stress incontinence, our study revealed the 1-hour pad tests were in significant association with morphological and functional features relating to female SUI pathogenesis. There were weak but significant associations of subjective measures of symptom severity with 1-hour pad tests except for physical activity severity. Physical activity severity and bothersome severity provided the morphological and functional information of urethral closure dysfunction. Physical activity severity also had a unique association with the risk factors for SUI. Interestingly, the UDI-6 and IIQ-7 scores bore no clear relationship to typical risk factors for or morphological and functional pathophysiology of SUI. Yet, advanced pelvic organ prolapse enhanced the associations of bothersome severity and UDI-6 and IIQ-7 scores with anterior vaginal wall relaxation. None of subjective severity measure was associated with VLPP grading.

Concluding message

Subjective measures of symptom severity for stress urinary incontinence may bear different relations to the risk factors for and relevant pathogenesis of female SUI. Because the pathogenesis of SUI is multifactorial and is not explainable by the conventional theory of anatomic incontinence and ISD only, understanding the inherited pathophysiology and implication inside of symptom questionnaires may help to reach a consensus on the definition of symptom severity.

Specify source of funding or grant

National Science Council (Research Grant No. NSC 95-2314-B-195-019-MY2 and NSC 96-2314-B-281-003), Mackay Memorial Hospital (Research Grant No. 9702) and Cathay General Hospital (Research Grant No. CT9560)

Is this a clinical trial? No

What were the subjects in the study? HUMAN

Was this study approved by an ethics committee? Yes

Specify Name of Ethics Committee Cathay General Hospital IRB and Mackay Memorial Hospital IRB

Was the Declaration of Helsinki followed? Yes

Was informed consent obtained from the patients? Yes