

## THE ASSOCIATION BETWEEN UROGENITAL SYMPTOMS AND DEPRESSION.

### Hypothesis / aims of study

In urogynaecologic literature it has been suggested that there is an association between urinary incontinence and depression. One theory suggests that the pathophysiologic background of urinary incontinence involves changes in central nervous system functioning. For example, low serotonin and noradrenaline levels in the central nervous system may lead to both depressive symptoms as well as a hyperactive bladder. The other explanation considers urinary incontinence as a chronic medical disorder which leads to depression. However, there are numerous possible other factors in the development of depressive symptoms that may confound the association between depression and urinary incontinence, including other urogynaecologic symptoms. Furthermore, urogynaecologic symptoms often occur in combination and therefore the impact of each symptom on mental well-being may be influenced by the other(s).

We set out to study the association between a variety of urogynaecologic symptoms and depressive symptomatology.

### Study design, materials and methods

A random population sample of 2043 women (63.8% of 3200 women who were initially invited) answered a questionnaire that included the validated Dutch translation of the Urogenital Distress Inventory (UDI) and the Center for Epidemiologic Studies- Depression scale (CES-D).<sup>1</sup> The questionnaire also included information about age, educational level (primary school or higher), parity, co-morbidity (diabetes, neurologic diseases, rheumatologic diseases, chronic obstructive pulmonary disease), weight and length (transformed into a Body Mass Index) and if a woman had a hysterectomy.

The CES-D score ranges between 0 and 60, with a higher score indicating more depressive symptoms. A cut-off value of 16 is generally used as a marker for a possible clinical depression.

For each symptom of the UDI, the correlation with a CES-D score below and above 16, was calculated using Pearson Chi Square statistics. In addition, Odds Ratio's with 95% confidence intervals were used to estimate the risk of a CES-D score > 16 for each symptom.

After the univariate analysis, all significant correlations were entered in a multivariate logistic regression model, with age, co-morbidity, parity, history of hysterectomy, BMI and educational level as co-variables.

### Results

In univariate analysis, all of the 19 UDI symptoms were statistically significantly (Pearson Chi Square  $P < 0.001$ ) correlated with the CES-D score. The Odds Ratio of a CES-D score > 16 for the presence of each symptom as compared to the absence of the symptom ranged between 1.8 (95% CI 1.5 – 2.2) and 2.3 (1.8 – 2.9).

In multivariate logistic regression analysis, only the questions "Do you experience frequent nighttime urination" (OR 1.9, 1.3;2.7) and "Do you experience pain or discomfort in the lower abdomen" (OR 1.5, 1.0;2.2) were statistically significantly associated with a CES-D score above 16. For all other symptoms, including those related to urinary incontinence and frequency/daytime urgency, the risk of a CES-D score above 16 was no longer significantly increased.

### Interpretation of results

Although there appears to be a significant association between urinary incontinence/overactive bladder symptoms and depression in univariate analysis, this association is completely lost in multivariate analysis. Especially with such a complex disease as depression, one has to carefully evaluate the effect of possible confounders. Frequent nighttime urination will often give sleep disturbances, which in turn may also be associated with depression. Pain is known to be associated with depression and this may explain the association between the item of the UDI regarding lower abdominal pain and a high CES-D score.

**Concluding message**

In contrast to recent publications that indicate an association between urgency/urge incontinence symptoms and depression, our study results could not confirm this. Adjusting urgency and urge incontinence symptoms for possible confounders is essential in future studies on urogenital symptoms and depression.

**Reference**

1. Measuring Health-related quality of life in women with urogenital dysfunction: the Urogenital Distress Inventory and Incontinence Impact Questionnaire revisited. *Neurourology and Urodynamics* 2003; 22:97-104