

## THE EFFECT OF ANXIETY, DEPRESSION AND PSYCHOTROPIC DRUGS ON URINARY INCONTINENCE. A CROSS-SECTIONAL STUDY FROM THE NORWEGIAN HUNT-STUDY (EPINCONT)

### Hypothesis / aims of study

Anxiety and depression are associated factors to urinary incontinence (UI) in women, with strongest association for urgency component of UI and for severe UI. (1, 2) There is also some evidence for co-occurrence between some psychotropic drugs and UI (2), but this has not been investigated in large epidemiological studies. The aims of this study were: 1) to investigate the mentioned associations in a large population-based survey and compare the strength of these associations with the well-known UI-risk factors parity and BMI, and 2) to investigate the association between use of psychotropic medication and urinary incontinence for the possible confounder of anxiety and depression.

### Study design, materials and methods

The HUNT2-study is a large population-based survey performed in the county of Nord-Trøndelag in Norway in the period 1995-97. All women aged 20 years or more who could come to a screening station could participate. EPINCONT is a questionnaire-based substudy of the HUNT2-study, including those 27992 women who answered the UI-questions. A multivariate logistic regression model was used to predict the adjusted odds of having high levels of anxiety and depression, using psychotropic medicines, having high BMI and having given birth among women with UI compared with women without UI. UI was defined as any leakage of urine. Anxiety and depression was defined with a score of 8 or more on the Hospital Anxiety and Depression Scale (HADS). Using medicine was defined as answering yes on the question if the person had used the specific psychotropic drug during the last 12 months.

### Results

The response rate for the EPINCONT-part of the HUNT2-study was 80%. The mean age was 49 years. 25% met the criteria for UI. Of these, almost half had stress UI, about 11% had urgency UI, 25% had severe UI and a third moderate UI. About 10% had  $\geq 8$  on the depression-score and 17% had  $\geq 8$  on the anxiety-score. 4% used anti-depressive medication. Anxiety and depression was associated with UI with adjusted ORs of 1.42 (95% CI 1.31-1.54) and 1.45 (95% CI 1.32-1.60), respectively, BMI  $\geq 30$  with OR 2.11 (95% CI 1.95-2.29) and having given birth to more than two children with OR 1.87 (95% CI 1.67-2.09). Use of antidepressants was associated with UI with adjusted OR 1.37 (95% CI 1.20-1.57). Unspecified use of analgesics was associated with UI with OR 1.36 (95% CI 1.24-1.49). We did not find any association between use of sedatives and sleep medicine and having UI (data not shown).

### Interpretation of results

In this large epidemiologic study, anxiety and depression was significantly associated with UI, but weaker than the established risk factors BMI  $\geq 30$  and parity. Use of antidepressants is associated with UI, also after adjusting for depression and anxiety as possible confounders.

### Concluding message

Use of antidepressants seems to be associated with UI. The association is of great interest and importance for clinical practice, and needs to be investigated with more reliable medication data.

Table 1. Characteristics of the study population: the EPINCONT women (N=27992). Results given as N and percentages.

	N	%
<b>Age at inclusion (years)</b>		
19-39	9373	33.5
40-54	8669	31
55+	9941	35.5
<b>Body mass index (kg/m<sup>2</sup>)</b>		
Under-weight (<18.5)	267	1.0
Normal (18.5-24.9)	12169	43.5
Overweight (25-29.9)	10301	36.8
Obesity (>30)	5028	18.0
<b>Parity</b>		
0	3931	14.0
1	3229	11.5
2	8951	32.0
3+	11595	41.4
<b>Urinary incontinence (UI)</b>	7008	25.0
<b>Type (n=6922)</b>		
Stress UI	3418	49.4
Urgency UI	756	10.9
Mixed UI	2420	35%
Other	328	4.7
<b>Severity (n=6347)</b>		
Slight	2730	43
Moderate	1996	31.4
Severe	1621	25.5
<b>Anxiety- and depression score</b>		
HADS-D $\geq$ 8	2774	9.9
HADS-A $\geq$ 8	4794	17.7
<b>Medication use last year</b>		
Anti-depressants	1182	4.2
Sedatives	1113	4.0
Sleep medicine	1269	4.5
Analgesics	3145	11.2

Tab 2. Logistic regression analyses with adjusted odds ratios (OR) for anxiety, depression, use of antidepressants, sedatives, sleep medicine, analgesics, high BMI, parity and having high education level among women with urinary incontinence versus continence. 95% confidence interval (CI). The continent group is reference group. The EPINCONT women (N=27992).

Independent factor	OR	95% CI
Age at inclusion	1.02	1.01-1.02
Anxiety HADS-A $\geq$ 8	1.42	1.31-1.54
Depression HADS-D $\geq$ 8	1.45	1.32-1.60
Use of antidepressants	1.37	1.20-1.57
Use of analgesics	1.36	1.24-1.49
BMI 25-30	1.38	1.29-1.48
BMI $\geq$ 30	2.11	1.95-2.29
Parity: 1 child	1.77	1.55-2.02
Parity: 2 children	1.87	1.67-2.09
Parity: $\geq$ 3 children	2.11	1.89-2.35
Education(4 years or more university)	1.64	1.45-1.85

#### References

- Melville JL et al. Major depression and urinary incontinence in women: Temporal associations in an epidemiologic sample. *AM J Obstet Gynecol* 2009; 201:491-97
- Felde G et al. Anxiety and depression associated with urinary incontinence. A 10-year follow-up study from the Norwegian HUNT study (EPINCONT). *Neurourol Urodyn* 2017; 36(2):322-328
- Hall SA et al. Are commonly used psychoactive medications associated with lower urinary tract symptoms? *Eur J Clin Pharmacol* 2012; 68(5):783-791

#### Disclosures

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