

## THE ASSOCIATION BETWEEN CHRONIC RESPIRATORY SYMPTOMS AND URINARY INCONTINENCE IN WOMEN

### Hypothesis / aims of study

It is well known that stress incontinence may occur in connection with coughing. Few studies have, however, investigated the burden of disease of incontinence among those who suffer from respiratory diseases with frequent coughing as part of the symptoms.

The aim of this study was to evaluate whether women suffering from chronic respiratory symptoms were at higher risk for being incontinent compared to other women.

### Study design, materials and methods

The EPINCONT study is part of a large survey performed in a county in Norway. 27936 women completed the incontinence part of the questionnaire. For the 6876 incontinent women (24,6%), a severity index was calculated based on the answers regarding frequency and amount of leakage, and the incontinence was categorised into slight, moderate and severe. The incontinence was also classified into three different subtypes; stress, urge and mixed incontinence. The survey included questions about socioeconomic factors, lifestyle factors and several medical conditions.

Three questions addressed respiratory symptoms: Do you have periodically daily coughing (yes/no)? Have you experienced wheezing or dyspnoea during the last 12 months (yes/no)? Do you have or have you previously had asthma (yes/no)? We combined the three variables into one scale with 4 categories corresponding to 0,1, 2 or 3 confirming answers to the questions. We considered these symptoms to be closely connected and regard the scale as an expression of severity of respiratory disease. The participants were also asked whether they used asthma medications.

Proportions were used to describe the frequency of urinary incontinence symptoms in the groups. Logistic regression analyses were used to adjust for confounding and evaluate the effect of the variables under study. Because of the close relation between the three respiratory variables they were not evaluated as independent risk factors, only the combined symptom scale was used in the multivariable analyses. In all logistic regression analyses, women with no incontinence served as the reference group.

### Results

Of the participants, 14% reported having periodically daily coughing, 12% wheezing or dyspnoea during the last 12 months and 8% current or previous asthma. The proportion of women with 1, 2, or 3 respiratory symptoms was 3%, 6% and 14%, respectively. The prevalence of incontinence in the different groups is displayed in table 1.

The prevalence of any incontinence, severe symptoms and stress and mixed incontinence was higher among women with any of the studied respiratory symptoms compared to women who did not report any respiratory symptoms. The prevalence was increasing with increasing number of symptoms. The prevalence of urge incontinence did not differ between women with or without respiratory symptoms. The results of the multivariable analyses (Table 2) showed that after adjustment for important confounders the association between number of respiratory symptoms and incontinence remained strong.

<b>Table 1</b>		<b>Any UI (%)</b>	<b>Severe UI (%)</b>	<b>Stress UI (%)</b>	<b>Urge UI (%)</b>	<b>Mixed UI (%)</b>
<b>Symptom</b>						
Periodically daily coughing	No	23	5	11	3	8
	Yes	36	11	18	3	14
Wheezing or dyspnoea during the last 12 months	No	23	5	12	3	8
	Yes	37	12	17	3	16
Current or previous asthma	No	24	5	12	3	8
	Yes	33	10	17	3	12
Number of symptoms	0	22	5	11	3	7
	1	30	8	15	3	12
	2	35	11	16	3	15
	3	44	16	23	3	18

Table 2. Results of multivariable logistic regression analyses, adjusted for age, body mass index, parity, smoking and use of asthma medications. Results are given in odds ratios (OR) with 95% confidence intervals (95% CI).

		<b>Any UI</b>	<b>Severe UI</b>	<b>Stress UI</b>	<b>Mixed UI</b>
		OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
No. of respiratory symptoms	0	1	1	1	1
	1	1.6 (1.5-1.7)	1.9 (1.6-2.2)	1.6 (1.4-1.8)	1.9 (1.7-2.1)
	2	2.1 (1.8-2.3)	2.8 (2.3-3.4)	1.9 (1.6-2.2)	2.7 (2.3-3.3)
	3	3.3 (2.8-4.1)	5.6 (4.1-7.7)	3.3 (2.6-4.2)	4.7 (3.6-6.2)

### **Interpretation of results**

Chronic respiratory symptoms and conditions like coughing, wheezing, dyspnoea and asthma are associated with an increased occurrence of urinary incontinence. Women with respiratory symptoms have more severe symptoms and are more likely to have stress leakage than other women.

### **Concluding message**

Chronic respiratory symptoms seem to be independent risk factors for the development of urinary incontinence. Clinicians meeting women suffering from chronic respiratory symptoms should be aware that these women may be at higher risk for urinary incontinence.