

**RESEARCH LETTER**

# Comorbidities Associated with Urinary Incontinence: A Case-Control Study from the Second Dutch National Survey of General Practice

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**Purpose:** The aim of this study was to identify which comorbidities are more common in patients with urinary incontinence compared with patients without this diagnosis.

**Design of study:** Case-control study.

**Setting/methods:** The data for this study were obtained from the Second Dutch National Survey of General Practice (DNSGP-2) performed in 2001 and were extracted from the electronic medical records of all patients registered in the participating practices in the year of study (2001). Conditional logistic regression was performed using the PHREG (proportional hazards regression) procedure.

**Results:** Urinary tract infections, constipation, and depression were more prevalent in both men and women with urinary incontinence than in controls. In men, heart failure is more common than among controls, and in women, diabetes mellitus, genitourinary prolapse, and chronic obstructive pulmonary disease (COPD)/asthma are more common than among controls.

**Conclusion:** General practitioners could ask for the presence of urinary incontinence in patients with the above described comorbidities. (J Am Board Fam Med 2007;20:608–610.)

Urinary incontinence is a widespread, troubling condition in men and women. However, only approximately half of the patients with urinary incontinence are diagnosed as such by the general practitioner (GP) because they do not seek help for this condition. The 2 most important reasons for not seeking help are that patients consider their incontinence not serious enough and that they believe that there is no treatment available.<sup>1</sup> Therefore, GPs should approach urinary incontinence more actively. The aim of this study was to identify which comorbidities are more common in patients with

urinary incontinence compared with patients without urinary incontinence. These comorbid diseases could be used as a trigger for case finding.

## Methods

The data for this study were obtained from the Second Dutch National Survey of General Practice (DNSGP-2) performed in 2001.<sup>2</sup> DNSGP-2 was conducted in 104 general practices, comprising 195 general practitioners (in total 165.5 general practitioner full-time equivalents). Eventually 8 practices were excluded from the database because of incomplete data collection on morbidity signs. Data [gender and age of the patient (25 years and older), contact diagnosis (International Classification of Primary Care [ICPC] code U04 [urinary incontinence]), and ICPC-coded comorbidity] were extracted from the electronic medical records of all patients registered in the participating practices in the study year (2001). We performed a case-control study in which controls were identified by detecting for every patient with urinary incontinence 3 persons without urinary incontinence from the same practice with the same age (in 5-year age bands)

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**Table 1. Association Between Urinary Incontinence and Other Diseases in Patients (25 Years and Older) in General Practice Adjusted for Age and Practice**

Comorbidity	Men and Women (n = 1707)		Men (n = 323)		Women (n = 1384)	
	OR	95% CI	OR	95% CI	OR	95% CI
Urinary tract infection	<b>2.90</b>	<b>2.49 to 3.37</b>	7.07	4.42 to 11.30	2.59	2.20 to 3.04
Genitourinary prolapse	—	—	—	—	<b>3.88</b>	<b>2.70 to 5.60</b>
COPD	1.49	1.15 to 1.93	1.34	0.82 to 2.17	<b>1.56</b>	<b>1.15 to 2.11</b>
Asthma	1.30	0.99 to 1.70	1.07	0.59 to 1.93	<b>1.37</b>	<b>1.01 to 1.87</b>
Heart failure	1.51	1.16 to 1.97	<b>3.15</b>	<b>1.90 to 5.21</b>	1.15	0.84 to 1.58
Diabetes	1.54	1.28 to 1.85	1.47	0.97 to 2.25	<b>1.55</b>	<b>1.26 to 1.91</b>
Constipation	<b>1.83</b>	<b>1.49 to 2.24</b>	2.11	1.37 to 3.26	1.76	1.40 to 2.21
Adiposity	1.30	0.62 to 2.75	1.00	0.10 to 9.70	1.35	0.61 to 2.97
Obesity	1.50	0.75 to 3.01	2.99	0.19 to 47.86	1.44	0.70 to 2.96
Depression	<b>1.81</b>	<b>1.45 to 2.26</b>	2.54	1.42 to 4.53	1.71	1.34 to 2.18

COPD, chronic obstructive pulmonary disease; OR, odds ratio; CI, confidence interval.

and gender who had at least 1 face-to-face contact with his/her general practitioner in the study year.

Conditional logistic regression analysis was performed using the PHREG (proportional hazards regression) procedure with urinary incontinence (yes/no) as the dependent variable to calculate odds ratios and 95% confidence intervals adjusted for age.

## Results

Our research population consisted of 1707 patients with urinary incontinence (323 men and 1384 women) and a control group of 963 men and 4105 women.

The results are shown in Table 1.

In both men and women, urinary tract infections, constipation, and depression were associated with urinary incontinence. Moreover, heart failure in men and diabetes mellitus, genitourinary prolapse, and asthma in women were associated with urinary incontinence.

## Discussion

Several diseases were associated with urinary incontinence, some both in men and women, others only in men or women. The presence of these diseases could be used as a trigger for diagnosing urinary incontinence in general practice.

The relationship of incontinence with urinary tract infections is obvious: a urinary tract infection can cause urinary incontinence, especially urge incontinence. In addition, the existence of urinary incontinence and the incomplete emptying of the

bladder may cause recurrent urinary tract infections.<sup>3</sup>

The association between constipation and urinary incontinence can be explained by increased intra-abdominal pressure.<sup>4</sup>

The relationship with depression could be explained in 2 ways. First, the symptoms and functional impairment of incontinence may lead to depression. Second, depression and altered neurotransmitter function could affect the bladder's complex regulation, leading to inhibited detrusor contractions and urge incontinence.<sup>5</sup>

The association of urinary incontinence and genitourinary prolapse and diabetes mellitus has been established previously.<sup>6,7</sup>

Surprisingly, we did not find a significant relation between adiposity or obesity and urinary incontinence as mentioned in some studies.<sup>4</sup> A possible explanation may be that overweight is underreported or rarely coded as a diagnosis in the medical record of the GP.

Another interesting finding was the difference in urinary incontinence-related morbidity between men and women. Chronic obstructive pulmonary disease (COPD) and asthma were significantly associated with urinary incontinence in women but not in men. From previous studies it is known that an increased abdominal pressure, caused by frequent coughing in COPD and asthma, is related to stress incontinence.<sup>3</sup> Stress incontinence affects more women than men, so this might be a possible explanation for the difference in men and women.

Heart failure on the other hand is significantly more related to urinary incontinence in men but not in women. The association between heart failure and urinary incontinence is probably explained by the presence of nycturia in heart failure and the use of diuretics. Perhaps men use more diuretics; however, after a literature search, we did not find an explanation for the sex difference, therefore this issue needs further investigation.

In conclusion, the general practitioner should be aware that urinary incontinence is associated with specific conditions. This opens the possibility of asking these patients about urinary incontinence.

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