

Prevalence of overactive bladder and urinary incontinence

FABIO PARAZZINI, MD; MAURIZIO LAVEZZARI, ScD; AND WALTER ARTIBANI, MD; ON BEHALF OF THE GRUPPO INTERDISCIPLINARE DI STUDIO INCONTINENZA URINARIA

Milano and Verona, Italy

We conducted a cross-sectional study in Italy among men at least 50 years old and women at least 40 years old who consecutively visited their general practitioners. Patients were asked about the frequency of symptoms of overactive bladder and urinary incontinence. A total of 9613 men (mean age, 64.8 years; range, 50–98 years) and 13,365 women (mean age, 60.3 years; range, 40–98 years) were identified by 774 general practitioners. The frequencies of overactive bladder were 3.0% (95% confidence interval, 2.7–3.5) in men and 1.1% (95% confidence interval, 0.9–1.3) in women. The corresponding frequencies for urinary incontinence were 8.3% (95% confidence interval, 7.7–8.9) in men and 10.2% (95% confidence interval, 9.6–10.8) in women.

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The reported prevalence of urinary incontinence ranges from 10% to 50%.^{1–9} The differences can be explained in part by the age distribution of the populations considered, with higher rates in studies including more older subjects.^{2,10} Further, some studies were conducted in selected populations.^{7,11}

With regard to diagnosis, although urinary incontinence should be an objectively proven condition of involuntary loss of urine, the criteria for its definition vary.¹² Differences also have been reported in the frequency of various types of urinary incontinence (urge, stress, and mixed incontinences),^{11,13–16} and data are scant on the frequency of overactive bladder without urinary incontinence.¹⁶ We therefore conducted a study in Italian men at least 50 years old and women at least 40 years old to determine the prevalence of overactive bladder and various types of urinary incontinence.¹⁴

MATERIALS AND METHODS

Eligible subjects were consecutive men at least 50 years old and women at least 40 years old who asked to be seen by their general practitioners during the study period. There were no exclusion criteria. Age cutoffs were chosen because of the very low rate of urinary incontinence in men younger than 50 years and in women younger than 40 years.²

Participating general practitioners were invited to take part in the study on the basis of lists of general practitioners specifically interested in epidemi-

ologic studies and affiliated with the Gruppo Interdisciplinare di Studio Incontinenza Urinaria (Interdisciplinary Group for the Study of Incontinence). Each general practitioner could decide when to start recruitment (generally soon after agreeing to participate) and stopped when 50 cases had been identified, or after 5 days. The motivation for participating was purely an interest in the data collection. All participating physicians were general practitioners, without any specific interest in urogynecological problems.

We obtained demographic information from each subject. The subjects were then asked: Have you had any involuntary urinary loss during the past 3 months? On average, do you urinate more than 8 times a day and/or more than once during the night? Have you any urgency symptoms? If the subject answered yes to the first question, that subject was defined as having urinary incontinence; if the subject answered yes to the second and third questions, that subject was considered to have overactive bladder.

Subjects with incontinence were interviewed further with the questionnaire proposed by Wein and colleagues^{17,18} for diagnosis of type of urinary incontinence: stress incontinence, mixed incontinence, or urge incontinence. The questionnaire provides a presumptive diagnosis of stress and urge incontinence on the basis of the presence or absence of the following symptoms: urgency, frequency with urgency, leaking during physical activity, amount of urinary leakage with each episode of incontinence, ability to reach the toilet in time after an urge to void, and nocturia. The criteria for overactive bladder without urinary incontinence (ie, patients reporting an urge to urinate more than 8 times a day and/or more than once during the night and/or with urgency symptoms) and various types of urinary incontinence were the

From the Istituto di Ricerche Farmacologiche "Mario Negri" and the Prima Clinica Ostetrico Ginecologica, Università di Milano (F.P.); the Direzione Medica, Farmacia and Upjohn (M.L.), Milano; and the Clinica Urologica, Università di Verona, Verona (W.A.), Italy. This study was supported by a grant from Farmacia Italia, where Maurizio Lavezzari is the director. Fabio Parazzini spoke at the symposium, "Vescica iperattiva ed incontinenza urinaria nella donna," in Napoli, 14th May, 2002, on behalf of Farmacia Italia. Address reprint requests to Fabio Parazzini, MD, Istituto di Ricerche Farmacologiche "Mario Negri", Via Eritrea, 62, 20157 Milano, Italy. E-mail: parazzini@marionegri.it.

TABLE 1**Frequency of overactive bladder and urinary incontinence according to sex and age**

Age, y	Men*			Women*		
	No urinary problem	OB only	UI	No urinary problem	OB only	UI
40–50				3122 (93.6)	23 (0.7)	190 (5.7)
51–60	3160 (93.8)	69 (2.0)	139 (4.1)	323 (90.6)	38 (1.1)	299 (8.4)
61–70	3071 (88.8)	116 (3.4)	273 (7.9)	3180 (87.5)	52 (1.4)	403 (11.1)
>70	2298 (82.5)	100 (3.4)	387 (13.6)	2320 (82.2)	39 (1.4)	463 (16.4)
Total	8529 (88.7)	285 (3.0)	799 (8.3)	11858 (88.7)	150 (1.1)	1358 (10.2)

*Data are presented as number (%) of subjects. OB, overactive bladder; UI, urinary incontinence.

criteria accepted by the main Italian research groups on urinary incontinence.

Informed consent was obtained from each subject. Participation in the study did not commit the patient to any instrumental examination or laboratory tests. Confidence intervals (CI) of the estimated percentages of frequency of urinary incontinence were based on the Poisson approximation. Statistical differences in the frequency of urinary incontinence among strata of age and sex were analyzed with the standard chi square test comparing observed and expected events and, when appropriate, using the test for trend.

RESULTS

A total of 9858 men and 13,671 women were identified by 774 general practitioners, representing approximately 1.5% of all Italian general practitioners. Of those, 26.6% were in northern Italy, 17.4% were in central Italy, and 56.0% were in southern Italy. Each general practitioner identified a mean of 30 subjects (range, 15–50). A total of 245 men (2.5%) and 306 women (2.2%) refused to enter the study. Thus the present report included information on 9613 men (mean age, 64.8 years; range, 50–98 years) and 13,365 women (mean age, 60.3 years; range, 40–98 years).

The frequencies of overactive bladder without incontinence were 3.0% (95% CI, 2.7–3.5) in men and 1.1% (95% CI, 0.9–1.3) in women. The corresponding frequencies for urinary incontinence were 8.3% (95% CI, 7.7–8.9) in men and 10.2% (95% CI, 9.6–10.8) in women (Table 1).

The frequencies of overactive bladder and urinary incontinence increased with age in both sexes. For example, the frequencies of overactive bladder were 2.0% and 1.1% in men and women 51 to 60 years but 3.4% and 1.4% in subjects older than 70 years. The frequency of urinary incontinence also increased with age; this trend was statistically significant (chi square with 1 df, adjusted for sex, $P < .05$).

Table 2 shows the distribution of subjects with urinary problems stratified by sex, age, and type of problem. Mixed incontinence was the most fre-

quent condition in men older than 60 years, and overactive bladder was more frequent in younger men. The relative frequency of stress incontinence tended to decrease with age. In women, stress incontinence and mixed incontinence were the most common causes of urinary incontinence in all age strata. The frequency of stress incontinence decreased with age, whereas that of mixed incontinence increased.

DISCUSSION

Before discussing the results, the study limitations must be considered. The study population consisted of men at least 50 years and women at least 40 years identified among patients who asked to be seen by their general practitioners during the study period, but not among all patients registered with these physicians. The general practitioners were not randomly identified among all Italian general practitioners, so their patients cannot be formally considered representative of the Italian population. Nevertheless, general practitioners participating in this study were placed throughout the main areas of the country. The strengths of the study included the opportunity to analyze the prevalence of urinary incontinence and overactive bladder in a large series of subjects with the use of standard methods for recording the symptoms and data collection. Further, the interview was conducted by physicians well known to the subjects, which should increase the reliability of diagnosis, particularly of various types of urinary incontinence.

The limitations of a patient's history in the diagnosis of type of urinary incontinence are widely recognized. In a review of the literature, a clinical history indicating stress or urge incontinence, when compared with a urodynamically based diagnosis, showed sensitivities of 0.9 and 0.4 and specificities of 0.5 and 0.6, respectively, in clinical studies.¹⁹ In epidemiologic studies with self-reported information, these values might be lower. Any misclassification of the type of incontinence would tend to reduce the differences in the frequency of different types.

TABLE 2

Frequency of overactive bladder and various types of urinary incontinence in strata by sex and age*

Age, y	Men†				Women†			
	OB only	UGI	SI	MXI	OB only	UGI	SI	MXI
40–50					23 (11.2)	31 (15.1)	93 (45.4)	58 (28.3)
51–60	69 (35.5)	30 (16.4)	33 (18.0)	55 (30.1)	38 (11.4)	59 (17.8)	127 (38.3)	108 (32.5)
61–70	116 (33.1)	63 (18.0)	37 (10.6)	134 (38.3)	52 (11.9)	72 (16.5)	169 (37.8)	147 (33.7)
>70	100 (24.1)	69 (15.7)	52 (12.5)	198 (47.7)	37 (7.6)	89 (18.3)	143 (29.4)	217 (44.7)
Total	285 (29.7)	162 (16.9)	122 (12.7)	391 (40.7)	150 (10.3)	251 (17.2)	532 (36.4)	530 (36.2)

*These totals are not the same as those in Table 1 due to missing values of subjects with OB or urinary incontinence.

†Data are presented as number (%) of subjects.

MXI, mixed incontinence; OB, overactive bladder; SI, stress incontinence; UGI, urge incontinence.

The frequency of urinary incontinence in this population was consistent with that reported in studies conducted in European and North American areas and in Italy in the general population. For example, the prevalences of urinary incontinence in women 50 to 60 years were approximately 18% in Denmark²⁰ and 12% to 17% in the United Kingdom.^{1,4} An Italian study of 2767 women found a prevalence of 11.8% for urinary incontinence in women 51 to 60 years old.

In contrast, the rates of urinary incontinence reported in this study were slightly lower than those reported by Lagace and colleagues in a similar ambulatory setting in the United States.⁶ They found prevalences of 35% for urinary incontinence in women 50 to 59 years and 5% in men in the same age group.

Among men the prevalence of urinary incontinence was similar to or slightly lower than that reported in the general population.¹ In the study by Bortolotti and associates, the overall prevalence of urinary incontinence in men older than 50 years was 2.3%, a figure somewhat lower than in the present study.¹⁴

An interesting finding of this study was the prevalence of overactive bladder without urinary incontinence, a condition rarely analyzed. It appears less frequently than urinary incontinence, particularly in women, and causes approximately 30% of urinary problems in men but only 10% in women. However, considering the frequencies of overactive bladder without urinary incontinence and urge incontinence, the conditions due to detrusor overactivity likely account for a large proportion of urinary problems.

In conclusion, this study, in a large number of subjects, provided an estimate of the prevalence of overactive bladder and urinary incontinence among people attending their general practitioners in Italy. It also emphasized the importance of detrusor overactivity-related conditions as a cause

of urinary problems in this population, in both sexes and all ages.

MEMBERS OF THE GRUPPO INTERDISCIPLINARE DI STUDIO INCONTINENZA URINARIA

Walter Artibani, Cattedra di Urologia, Università di Verona; Francesco Benvenuti, Unità Operativa di Geriatria, Ospedale INRCA c/o Presidio IOT, Firenze; Roberto Carone, Divisione di Urologia, Centro Rieducazionale Funzionale, Torino; Francesco Catanzaro, Divisione di Urologia, Multimedita, Sesto San Giovanni (MI); Claudio Cricelli, SIMG, Firenze; Paolo Di Benedetto, Centro di Riabilitazione, Ospedale Santoro, Trieste; Vincenzo Giambanco, Divisione II di Ostetricia e Ginecologia, Ospedale Civico, Palermo; Gian Battista Massi, Clinica Ostetrica e Ginecologica, Università di Firenze; Rodolfo Milani, Divisione di Ginecologia, Ospedale Bassini, Cinisello Balsamo (MI); and Alberto Zanollo, Divisione di Urologia, Ospedale Civile, Magenta, Milano.

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