

Five-Year Follow-up of Urinary Incontinence in Older People in a Spanish Rural Population

F. Gavira Iglesias,^a J.M. Caridad y Ocerín,^b J.B. Guerrero Muñoz,^c M. López Pérez,^c M. Romero López,^c and M.V. Pavón Aranguren^c

Objective. To determine prevalence, incidence and remission rates and change patterns of urinary incontinence (UI) over a 5-year time span.

Design. Longitudinal study.

Location. Basic Health Zone of Cabra (Córdoba).

Patients. A random age-stratified sample of 827 subjects selected from a total of 5139 persons ≥65 years of age and followed up between 1996 and 2001.

Interventions. Home interview.

Measurements. Questions about detection and level of severity of UI, sociodemographic data, and level of functioning. Two logistic regression models were created to identify risk factors for the probability to be alive and to develop UI, respectively.

Results. UI prevalence reached 36% at baseline and 46% five years later. Mortality rates were similar in continent and incontinent subjects. 54.5% of continent subjects in 1996 remained so in 2001. Five-year incidence and remission rates were 29% and 15%, respectively. In both sexes, slight and moderate incontinence mainly progressed to moderate and severe degrees, whereas severe UI remained unchanged in 40.1%. The main risk factors for increased survival and for UI incidence were self-rated health and level of functioning.

Conclusions. Prevalence of UI is high, incidence is moderate and remission is low. Urinary incontinence is a dynamic problem and does not affect mortality. Impaired mobility has a strong influence on UI incidence.

Key words: Urinary incontinence. Old aged. Prevalence. Incidence. Remission. Follow-up.

SEGUIMIENTO DURANTE 5 AÑOS DE LA INCONTINENCIA URINARIA EN LOS ANCIANOS DE UNA POBLACIÓN RURAL ESPAÑOLA

Objetivo. Determinar, en un período de 5 años, la prevalencia, la incidencia, la remisión, los patrones de cambio de la incontinencia urinaria (IU) y los factores asociados con los cambios en el estatus de continencia.

Diseño. Estudio longitudinal prospectivo.

Emplazamiento. Zona Básica de Salud de Cabra (Córdoba).

Participantes. Un total de 827 sujetos seleccionados en 1996 entre 5.139 personas ≥ 65 años mediante muestreo aleatorio estratificado por grupos de edad y seguidos entre 1996 y 2001.

Intervenciones. Encuesta domiciliaria.

Mediciones. Preguntas sobre detección y severidad de la IU, datos sociodemográficos y valoración funcional. Se analizaron las variables explicativas para la probabilidad de estar vivo y desarrollar IU a los 5 años, respectivamente.

Resultados. La prevalencia de IU fue del 36% en 1996 y del 46% en 2001. La mortalidad fue similar en continentes e incontinentes. El 54,5% de los sujetos continentes en 1996 permaneció igual en 2001. Las tasas de incidencia y remisión a los 5 años fueron del 29 y 15%, respectivamente. En ambos sexos, la incontinencia ligera y moderada evolucionó principalmente hacia grados moderados y severos, mientras que la IU severa permaneció sin cambios en el 40,1%. La autopercepción de salud y la situación funcional son las principales variables que influyen tanto en la supervivencia como en la incidencia de IU.

Conclusiones. La prevalencia de IU es alta, la incidencia es moderada y la remisión espontánea baja. La IU es un problema dinámico y no afecta a la mortalidad. El deterioro de la movilidad influye fuertemente en la incidencia de IU.

Palabras clave: Incontinencia urinaria. Ancianos. Prevalencia. Incidencia. Remisión. Seguimiento.

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^aCentro de Salud de Cabra, Zona Básica de Salud de Cabra, Córdoba, Spain.

^bDepartamento de Estadística, Universidad de Córdoba, Córdoba, Spain.

^cDistrito Córdoba Sur, Córdoba, Spain.

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Correspondence:
Francisco Javier Gavira Iglesias.
Urbanización Los Polares, 23.
14900 Lucena. Córdoba. España.
E-mail: med015490@ya.com

Introduction

During the last decade many studies have been published on the prevalence of urinary incontinence (UI) in older people living in the community.^{1,2} However, few studies have looked at the incidence, spontaneous remission and risk factors for UI in this population.² Studies done in Japan, New Zealand, and Sweden found annual incidence rates of UI that ranged from 2% to 7%.³⁻⁵ Higher incidence rates (15%-28%) and remission rates (10%-25%) have been reported for older people in the USA and southern Australia.⁶⁻⁸ Knowledge of the natural history of UI can have important repercussions on its prevention and treatment. If slight UI progresses often to more severe degrees, early treatment should be started. But if a large percentage of slight forms remit spontaneously, a wait-and-see attitude is appropriate.

In recent years 3 studies in Spain have looked into the prevalence of UI in older people living in the community.⁹⁻¹¹ To date, however, no studies have been published on the natural history of UI in this population. The present study was designed to determine, in older people in Spain, the prevalence, incidence, remission rate and pattern of changes in UI over a 5-year period to evaluate the factors associated with changes in continence status.

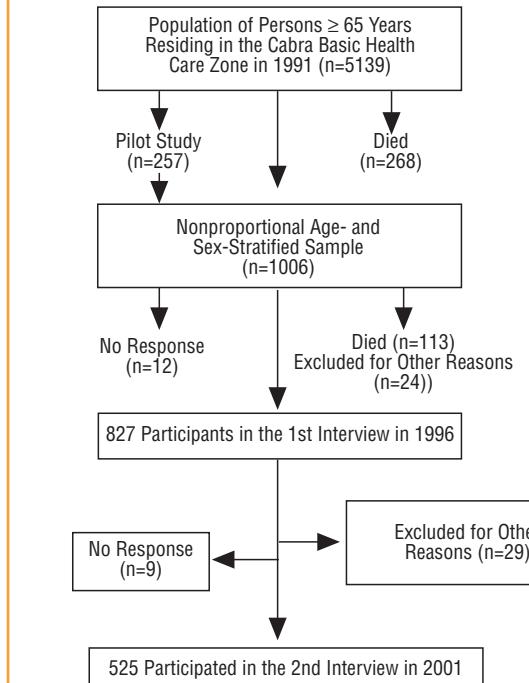
Methods

The study was carried out in the Cabra Basic Health Care Zone in the province of Cordoba, southern Spain, with 2 home interviews. The study population consisted of 5139 persons aged 65 years or more, according to the 1991 municipal census. This population included older persons living in residential care facilities. The first interview took place in June or July 1996. To refine the questionnaire and estimate sample size, we performed a pilot study with a nonproportional sample of 5% of the 5139 subjects (n=257). One third of these participants were assigned to each of the 3 age strata (65-74, 75-84, and ≥85 years). This was done to include as many subjects as possible in older age groups. After we had determined the prevalence rates for each age group in the pilot study, the final sample for each age group was obtained by interviewing additional subjects until the required number was reached (the final numbers included those interviewed in the pilot study). The size of the final sample and of each age group was calculated to estimate prevalence with a precision of ±3% and a 95% confidence level. The results of the first interview were reported in an earlier publication.¹⁰

The second interview took place in May or June 2001. The data reported here were obtained for a total of 525 subjects who took part in both interviews, and 302 subjects who participated in the first interview but died during the ensuing 5 years, or who were excluded from the second interview (Table 1).

One week before the interview a letter was sent to each person. If the individual was hospitalized at the time, the interview was scheduled for 30 days after discharge. Data were recorded by 3 interviewers who were specially trained for this study. If the sub-

Material and methods



General Scheme of the Study

Prospective 5-year follow-up study of urinary incontinence in a representative sample of the population of persons ≥ 65 years in the Cabra Basic Health Care Zone (province of Cordoba, southern Spain).

ject had a hearing impairment, aphasia or cognitive impairment, answers provided by a close relative or friend were recorded. To detect UI we used 2 questions: "Do you have involuntary or unexpected losses of urine without being able to help it?" and "Do you wet your underwear, street clothes or bedclothes unintentionally?" We defined UI as an affirmative answer to either of the 2 questions or as the use of a urethral catheter^{12,13} or pads. Only persons with incontinence completed the rest of the questionnaire. To grade the severity of UI we used the Sandvik scale,¹³ which categorizes UI as slight, moderate or severe (Table 2). The questionnaire also contained items covering sociodemographic information and functional status, which was evaluated with the Barthel Index as modified by Shah.¹⁴ The item on this index dealing with UI was omitted, so that the maximum score was 90 points. The data were analyzed with basic statistical measures (mean and standard deviation for quantitative data, percentages for qualitative data) with the SPSS. To compare functional characteristics at the beginning and the end of the study we used Student's *t* test and Wilcoxon's nonparametric one-tailed test. Two logistic regression models were developed to identify variables that explained the likelihood of being alive and of developing UI. Because of the type of sampling used in this study, we used weightings to ensure proportionality when the overall results

were reported. To estimate the proportion (p) of UI we considered sampling to be nonproportional with 3 age groups, such that where N was population size, N_1 , N_2 , and N_3 were the number of persons in each age stratum, and n_1 , n_2 , and n_3 were the respective sample sizes.

Results

At the start of the study in 1996 we selected 1006 persons, 827 of whom we were able to interview. Five years later, 293 subjects (35%) were excluded from the 2001 survey

(264 had died and 29 had moved out of the health care zone). The percentage of persons who died was higher ($P<.05$) among men (27% vs 18%). Of the remaining 534 participants, 9 (2%) did not respond (7 could not be located after 2 visits and 2 declined to participate). We therefore interviewed a total of 525 subjects, for a response rate of 98% (Table 1). The sociodemographic and functional characteristics of the 525 subjects are summarized in Table 3.

In 1996 the prevalence of UI was 36% (95% CI, 33%-38%) in the general population, 41% (95% CI, 38%-

TABLE 1 Study Population and Sample. Prevalence, Incidence and Remission Rates for Urinary Incontinence

Men	65-74			75-84			≥85			Total*		
	Women	All	Men	Women	All	Men	Women	All	Men	Women	All	
1996												
Study population, N												
Initial, municipal census 2001	1419	1626	3045	593	973	1566	176	352	528	2188	2951	5139
Subjects who died before 1 Aug 1996	36	25	61	57	44	101	36	70	106	129	139	268
Final	1383	1601	2984	536	929	1465	140	282	422	2059	2812	4871
Sample, n												
Initial	152	172	324	144	222	366	112	204	316	408	598	1006
Subjects excluded												
Died before 1 Aug 1996	3	3	6	20	16	36	24	47	71	47	66	113
Other causes	2	2	4	4	11	15	1	4	5	7	17	24
Nonresponders	4	7	11	4	15	19	5	7	12	13	29	42
Final	143	160	303	116	180	296	82	146	228	341	486	827
Subjects with urinary incontinence	35	65	100	40	65	105	35	90	125	110	220	330
Prevalence of urinary incontinence, %	24	41	33	34	36	35	43	62	55	28	41	36
2001												
Study population, N												
Subjects who died between 1 Aug 1996 and 30 June 2001	188	107	295	175	235	410	78	151	229	441	493	934
Final	1195	1494	2689	361	694	1055	62	131	193	1618	2319	3937
Sample, n												
Subjects excluded												
Died before 30 June 2001	27	7	34	48	51	99	47	84	131	122	142	264
Other causes	3	5	8	3	11	14	3	4	7	9	20	29
Nonresponders	1	5	6	0	2	2	0	1	1	1	8	9
Final	112	143	255	65	116	181	32	57	89	209	316	525
Subjects with urinary incontinence	36	78	114	31	53	84	15	49	64	82	180	262
Prevalence of urinary incontinence, %	32	55	45	48	46	46	47	86	72	36	54	46
Incidence of urinary incontinence†	14	28	42	17	24	41	6	18	24	22%	36%	29%
Remission of urinary incontinence††	5	7	12	4	7	11	0	1	1	18%	14%	15%

*Weighted percentages.

†Proportion of the number of persons with incontinence in 2001 who were continent in 1996 divided by the number of persons who were continent in 1996 and who remained continent in 2001.

††Proportion of the number of persons who were continent in 2001 who were incontinent in 1996 divided by the number of persons who were incontinent in 1996 and who remained incontinent in 2001.

TABLE 2 Questions Used to Evaluate the Degree of Urinary Incontinence. Sandvik Scale

1. How often do you experience leakage?
Less than once a month
One or several times a month
One or several times a week
Every day and/or every night
2. How much urine do you lose each time?
A few drops or a little
More

The severity index is obtained by multiplying the scores for questions 1 and 2: 1-2 indicates slight incontinence; 3-4, moderate incontinence; 6-8, severe incontinence.

TABLE 3 Sociodemographic and Functional Characteristics of the Subjects*

	Men	Woman	Total
Subjects studied in 2001, n	209	316	525
Age, years (\pm SD)	80.5 \pm 7.2	81.8 \pm 7.4	81.3 \pm 7.3
Marital status, %			
Unmarried	12	7	9
Married	72	40	53
Widowed	16	53	38
Educational level, %			
Illiterate/No formal education	92	97	95
No university education	7	3	5
University education	1	0	0
Living alone, %	11	18	15
Institutionalized in residential facility, %	1	3	2
Functional status, %†			
Independence (BI=90)	74	58	65
Moderate dependence (BI=61-89)	20	32	27
Severe dependence (BI=21-60)	1	4	3
Total dependence (BI=20)	5	6	5

*Weighted percentages. BI indicates Barthel index; SD, standard deviation.

†Student's *t* test and Wilcoxon's one-tailed test ($P<.0005$).

44%) in women, and 28% (95% CI, 24%-33%) in men (Table 1). Five years later the prevalence had increased to 46% (95% CI, 43%-50%) in the general population, to 54% (95% CI, 50%-57%) in women, and to 36% (95% CI, 30%-43%) in men. At both times the prevalence was higher among women ($P<.001$). Overall prevalence and the prevalence in women were significantly higher ($P<.001$ and $P<.01$, respectively) in 2001, although the increase in prevalence in men was not significant.

During the period from 1996 to 2001, 107 persons became incontinent (29%; 95% CI, 27%-30%) and incontinence remitted in only 24 (15%; 95% CI, 14%-16%). The incidence was higher ($P<.01$) in women (36%; 95% CI, 34%-37%) than in men (22%; 95% CI, 19%-25%) and decreased significantly ($P<.025$) with age. However, the remission rate was higher in women (14%; 95% CI, 13%-15% vs 18%; 5% CI, 17%-19%), although the difference was not significant and also decreased as age increased ($P<.05$).

Of the 497 continent subjects in 1996, 54.5% remained continent 5 years later and 21% progressed (in similar proportions) to slight, moderate or severe grades of UI (Table 4). Women who became incontinent developed, in almost equal proportions, slight or severe incontinence, whereas men more frequently progressed to moderate incontinence. In both sexes slight and moderate UI progressed mainly toward more severe grades (moderate and severe, respectively). Patients with severe UI in 1996 showed the smallest changes in degree of severity (40.1% also had severe incontinence 5 years later), and tended to show improvement to slight incontinence, whereas women tended to improve only toward moderate incontinence. Remission rates were low in persons with severe incontinence (6.2%) and higher in those with moderate UI (14.3%) than in persons with slight UI (9.7%). Mortality rates were similar in continent and incontinent persons.

In 1996 the most frequent form of UI in both sexes was moderate, followed by slight and severe incontinence (Table 4). In 2001 the predominant types of incontinence were moderate in men, and severe in women. After 5 years slight UI showed little or no decrease in men or women (1.2%), moderate UI showed a small increase (2.1%), and severe UI became twice as common. In 1996 and 2001 the percentage of women with slight or severe UI was twice the percentage in men, and the percentage of women with moderate UI was also greater than in men, but only slightly so (by less than 1%).

Table 5 presents the logistic regression models used in this study. In the first model, younger age, female sex, better functional status, and a positive perception of ones own health increased the likelihood of being alive 5 years later. In the second model, impaired mobility, poor self-perceived health, not living with a spouse or partner, and female sex were risk factors for the appearance of UI 5 years later.

Discussion

This is the first Spanish study designed specifically to investigate the natural history of UI in older people. Our most relevant findings are the elevated response rate, the high prevalence, moderate incidence and low rate of remission of UI. In most cases remission was considered

TABLE 4
Changes in Continence Status

Initial (1996)		Follow-up (2001)					
	Total % (n)	NR/Excl (%)	Died (%)	No UI (%)	Slight UI (%)	IU moderada (%)	Severe UI (%)
Men							
No UI	100 (231)	3.0	24.7	56.9	3.4	7.4	4.6
Slight UI	100 (25)	0.0	49.2	6.5	9.4	21.6	13.3
Moderate UI	100 (58)	4.4	23.3	16.4	9.8	34.8	11.3
Severe UI	100 (27)	0.0	25.5	13.4	13.4	2.9	44.8
Total	100 (341)	2.8	27.4	44.7	5.0	12.2	7.9
Women							
No UI	100 (266)	4.4	16.6	52.1	9.3	8.0	9.6
Slight UI	100 (57)	2.0	11.4	10.9	21.6	30.1	24.0
Moderate UI	100 (81)	11.0	22.0	12.5	6.0	22.6	25.9
Severe UI	100 (82)	20.1	20.4	3.5	5.7	11.6	38.8
Total	100 (486)	6.3	17.6	35.2	10.3	13.8	16.8
All							
No UI	100 (497)	3.7	20.7	54.5	6.3	7.7	7.1
Slight UI	100 (82)	1.5	21.8	9.7	18.7	27.7	20.5
Moderate UI	100 (139)	8.0	22.5	14.3	7.6	27.8	19.8
Severe UI	100 (109)	13.5	22.6	6.2	8.2	9.4	40.1
Total	100 (827)	4.8	21.9	39.3	8.1	13.1	12.9

*NR/excl. indicates nonresponders/excluded

spontaneous, as our health care zone did not operate a program for the detection, diagnosis and treatment of UI until 1 March 2001.¹⁵

Those few studies that have investigated the natural history of UI can be divided into 2 groups. One comprises studies involving older people in the USA and Australia,⁶⁻⁸ and reporting high rates of prevalence (from 23% to 41% depending on the type of UI), incidence (10%-20% annually, and 20%-30% over 3 years) and remission (from 12% to 30% annually, and 22%-25% over 3 years). These studies used a broad definition of UI, and the diagnosis was confirmed by clinical examination only in the study by Herzog et al.⁶ The second group consists of studies in Scandinavian, New Zealand, and Japanese populations,^{3-5,16} reporting low rates of prevalence (generally below 17% except for the study by Holtedahl and Hunskaar,¹⁶ which reported a prevalence of 47%), incidence (from 0.6% annually to 11% over 20 years), and remission (0% annually, 13% over 3 years, and 0% over 20 years). These studies also used a broad definition of UI, although most of them confirmed the diagnosis by clinical examination. Our study, with methods similar to those of the first group, found a prevalence rate as high as in those earlier studies, but our incidence and remission rates were much lower than in this group. However, our figures were higher than in the second group of studies.

Our figures deserve some comment. The incidence we found was practically twice the remission rate, a situation that led to a steady increase in the prevalence of UI. In 5 years the overall prevalence of UI increased by 10% and UI was found in 46% of all survivors, with a much greater increase in women (54%). These data show that in older people, UI is a problem related with age and sex.⁸ Only Herzog et al⁶ studied the patterns of change in the degrees of severity of UI in detail. Our results are similar to theirs in that practically half of the continent subjects had never been incontinent, the incidence was higher than the remission rate, remission rate was higher in men, and severe forms of UI remained more stable with time than slight or moderate forms. The longer time period of our study (5 years) compared to the study by Herzog et al (1 year) may account for the differences in the changes in severity patterns with time. In 1996 and 2001, the most frequent degree of UI in our study was moderate, followed by severe and slight. Herzog et al found,⁶ in contrast, that slight UI was the most frequent form, followed by moderate and severe UI. Unlike Herzog et al, we found that severe UI was more stable in men, and courses mainly with remission or to slight UI. This may be because the most frequent types of UI in men were functional incontinence and urgency incontinence, often caused by physical or cognitive impairment, neurological problems (diabetes, stroke, Parkinson's disease), benign

TABLE 5 Logistic Regression Models*

Subjects	Status	Dependent Variable	Independent Variables	Adjusted OR (95% CI)	P
n					
Model 1†: variables that explained the likelihood of being alive††					
737	Continent and incontinent in 1996	Likelihood of being alive (0=dead; 1=alive)	Age in years (continuous variable)	0.90 (0.88-0.93)	.0000
			Functional status (BI=90) (continuous variable)	1.04 (1.02-1.06)	.0000
			Sex		
			Woman	0.43 (0.29-0.63)	.0000
			Man	1	
			Self-perceived health		
			Fair/Poor/Very poor	0.47 (0.32-0.69)	.0001
			Very good/Good	1	
Model 2‡: variables that explained the likelihood of becoming incontinent\$					
340	Continent in 1996	Likelihood of being incontinent (0=continent; 1=incontinent)	Age in years (continuous variable)	1.02 (0.98-1.06)	.2846
			Sex		
			Woman	0.63 (0.38-1.06)	.0842
			Man		
			Mobility		
			Independence (ambulation=15)	2.87 (1.53-5.39)	.0010
			Dependence (ambulation<15)	1	
			Self-perceived health		
			Very good/Good	1.73 (1.04-2.88)	.0356
			Fair/Poor/Very poor	1	
			Living with		
			Spouse	0.51 (0.30-0.86)	.0124
			Alone/With others	1	

*OR indicates odds ratio; CI, confidence interval.

†Multivariate analysis with all variables simultaneously in the model.

‡Subjects who did not respond for themselves in 1996 were excluded, as were those who were excluded in 2001.

\$Subjects who did not respond for themselves in 1996 were excluded, as were those who were excluded or who died in 2001.

hyperplasia of the prostate, and intestinal infection or dysfunction, all of which are relatively amenable to treatment.² As a result UI can be cured or may evolve toward slight incontinence in more than 25% of the cases. The lower remission rate for severe UI in women may be explainable because women are less likely to tell health care professionals about the problem,¹⁷ because of its multifactorial origin, and the greater difficulty of treating female incontinence.

As in many earlier studies of UI,^{4,7,18-21} the variable most strongly associated with the appearance of UI in the older people we studied was impaired mobility. This finding corroborates the importance of the functional component of UI in older persons—a factor that is modifiable and preventable, but that is rarely mentioned in the literature.²²

In our setting, mortality, as in other studies,^{23,24} affected continent and incontinent persons alike; in other words UI in the older people we studied was not a risk factor for mortality. However, others^{4,5,25} have found that UI is an independent risk factor for mortality. Some of the factors that influence survival in our population of older people were also noted by Herzog et al⁶ (age and self-perceived health), Nakanishi et al²⁵ (age, female sex, self-perceived health) and Koyano et al⁵ (independence in performing basic activities of daily living).

Our study is not without limitations. Firstly, incontinence was not demonstrated objectively. However, the prevalence of UI determined with objective measures differs only slightly from that found with questionnaires.¹⁹ Secondly, we did not estimate the reliability of the questions used by

Discussion
Key points**What Is Known About the Subject**

- To date 3 studies have been published on the prevalence of urinary incontinence in older people in Spain.
- The medical literature contains few longitudinal studies of urinary incontinence in older people, and no studies in older people in Spain.
- Knowledge of the natural history of urinary incontinence may have important repercussions on its prevention and treatment.

What This Study Contributions

- This study provides the first set of data on the natural history of urinary incontinence in older people in Spain, and on the factors that influence the incidence of incontinence.
- The prevalence of incontinence increased in 5 years from 36% to 46%, incidence was 29%, and remission rate was 15%. Half of the persons who were continent in 1996 remained so in 2001. Severe incontinence showed the smallest changes.
- Urinary incontinence is not a marker of mortality.
- Impaired mobility is the factor with the strongest influence on the incidence of urinary incontinence. This factor is preventable and treatable.

different interviewers. Nonetheless, the same health professionals were interviewers on both occasions, and were trained specifically for this study. Thirdly, the survey did not inquire about the type of UI or record information on comorbidity.

Urinary incontinence in older people is frequent, becomes more frequent as the population ages further, has a low rate of spontaneous remission, tends to worsen, and is associated with functional dependence. These factors mean that health care professionals are faced with a two-fold task. On one hand they must try to prevent or delay functional disability and other modifiable risk factors for UI with early identification and treatment. In addition, they should initiate a program for the detection, diagnosis and treatment of urinary incontinence that will lead to remission or at least slow its progression to more severe forms.

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COMMENTARY

Urinary Incontinence: Another Silent Epidemic?

J.M. Bosch Fontcuberta

Area Básica de Salud Encants (Maragall), Barcelona, Spain.

Urinary incontinence (UI) is defined by the International Continence Society as the involuntary loss of urine through the urethra which can be demonstrated objectively, and which has social and hygienic repercussions for the patient. A number of studies have reported elevated prevalences that range from 5% to 59%. In Spain, several studies in primary care patients have reported a prevalence of UI of 15.4% among women aged 40 to 60 years, or around 30% in women older than 65 years, and a prevalence of 14% in older men.¹ These figures are similar to the prevalence rates for other countries. Most of the variability in the results may be due to sampling bias (for age, sex, or educational level), differences in severity or type of incontinence, or the low rate of notification.

Although UI is a frequent health problem, few of those affected (20%-30%) seek professional help. Some of the reasons adduced are feelings of embarrassment, considering it a "normal" or inevitable problem at certain ages, or simply believing that there is no solution.² It has been reported that the mean time until the patient considers UI a problem can be as long as 4 to 6 years. On the other hand, only 10% of all care providers ask their patients about continence, and the percentage of patients who are subsequently evaluated and treated is low.

In geriatrics, UI is considered one of the so-called geriatric giants, and its repercussions require evaluation from a medical, psychological and social perspective. Urinary incontinence in an older person predisposes the patient to the appearance of a variety of medical problems ranging from skin

Key Points

- Urinary incontinence (UI) is a prevalent problem in Spain, but remains concealed by those who suffer from it, and is thus rarely evaluated or treated by primary care professionals.
- Questionnaires to evaluate UI are useful initially to detect the problem, appear to show good correlation with the objective diagnosis of UI, and provide indications of the type of incontinence involved.
- Rehabilitation and pharmacological treatment lead to improvement in about 70% of the cases. A small percentage of patients will need specialized evaluation and treatment.
- Use of a protocol for managing UI is feasible in primary care, although it requires prior training and adequate time. Collaborative efforts involving nursing staff and the family physician are of key importance for implementing such protocols.

lesions (perineal dermatitis, pressure ulcers) to urinary tract infections, including urinary sepsis in fragile patients, or to falls and fractures—clear examples of cascading problems.

Moreover, UI is known to favor isolation and impoverished social relations, and can affect self-esteem to the extent that the individual develops depressive disorder. Urinary incontinence has also been identified as a variable associated with a greater likelihood of admission to a residential care facility. In addition, UI involves high pharmaceutical costs, as it is estimated that up to 3.2% of the annual budget of the National Health System in Spain is spent on incontinence pads.³

The Cordoba Group for the Study of Urinary Incontinence is a good example of primary care research groups in Spain. The logically ordered sequence of projects this group has carried out during the last several years has comprised the evaluation of a well-defined population of older people, study of the prevalence of UI, and analysis of a number of sociodemographic variables and associated problems.⁴ As reported by Gavira Iglesias et al in this issue of ATENCIÓN PRIMARIA; this group then followed the same cohort, with interesting results. The study is the first in Spain to report on the course of UI in a rural sample over a prolonged period. This 5-year follow-up found that the usual course of UI tends toward increasing prevalence (from 36% in 1996 to 46% in 2001), and toward a higher incidence in older women (15%) than in men (10%). In contrast, clinical improvements toward milder forms, or complete remission, were less frequent in women because women tended to report this symptom less often (and by the time they did, UI had usually become more severe), and because of its multifactorial origin and difficulties with treatment. One finding of interest from this observational study was that the variable most clearly associated with UI was limited mobility, which suggested to the authors that UI had an evident functional component in older people.

The Cordoba Group has implemented a UI management program at a primary care health center.⁵ The program is built on two levels of intervention by the primary care physician and nursing professional in the first instance, and then by specialists in urology and gynecology. The results after the first year of operation, in a sample of 41 cases (most with severe UI), showed the program to be agile, simple to implement, and efficient.

Urinary incontinence can be detected with simple questions such as "Do you have involuntary or unexpected losses of urine without being able to help it?" or with questionnaires. In this connection, a questionnaire is available that has been validated with appropriate levels of sensitivity and specificity for the Spanish population, and that may help to identify the type of UI involved (stress, urgency or mixed).⁶

Once the initial suspicion of UI is established, the patient should be evaluated (including a general physical examination and urological, neurological and gynecological examination), and urinalysis should be done to determine

possible urinary tract infection or hematuria. Blood tests should be done to measure glycemia and calcemia and to obtain a hemogram.^{3,5} Based on the results of these initial studies, conservative treatment can be started. If the patient has stress UI, supervised exercises to strengthen the pelvic floor have been shown useful in up to 75% of all cases,⁵ whereas in other cases surgical treatment or pharmacological treatment with alpha adrenergic agonists may be needed.^{3,5} Urgency UI responds better to pharmacological treatment with anticholinergics and bladder retraining.^{2,3,5} Urinary incontinence with symptoms of obstruction (overflow UI) usually requires surgical treatment. It should be recalled, however, that many of the causes of UI in older people are transitory (in up to 30% of all outpatient cases, and up to 50% of all hospitalized or institutionalized patients). The list of etiologic factors in transitory UI includes acute confusional states (delirium), urinary tract infection, atrophic vaginitis, a number of drugs (sedatives, anticholinergic agents, adrenergic agents and diuretics), hypercalcemia and hyperglycemia, and commonplace situations such as immobility, fecal impaction or depressive disorder.

There is consensus that urodynamic studies should be ordered when the diagnosis is uncertain, when UI is severe, when initial treatment fails to lead to a satisfactory response, when the postmicturition residual is greater than 100 mL, and when there are antecedents of repeated, symptomatic urinary infections, pelvic or anti-incontinence surgery, or radiotherapy. Specialized studies should also be considered for patients with sudden onset urgency UI, symptomatic genital prolapse or hematuria in the absence of urinary tract infection. However, these situations occur in only a small percentage of patients with UI.^{2,3,5}

Most cases of UI can thus be evaluated initially by the primary care team, who will be able to implement initial therapeutic measures and evaluate the response. Nursing professionals play a fundamental role in the prevention of UI, its early detection, and rehabilitation. Some of the measures recommended to prevent UI are summarized in Table. Patients with UI will need to be given realistic answers appropriate for each individual case, depending on available

TABLE 1 Preventive Measures for Urinary Incontinence (UI)

Prevention and treatment of obesity
Avoiding immobility
Avoiding social isolation in older people
Avoiding or decreasing caffeine and alcohol intake
Reducing excessive intake of liquids
Reassessment of medications that predispose to or trigger UI
Treatment of atrophic vaginitis
Treatment of urinary infection

therapeutic options and the patient's capacity for cooperation, in order to avoid false expectations or blame-shifting. In conclusion, a number of epidemiological studies in Spain have shown that UI is a prevalent but hidden health disorder. The cohort of patients followed by Gavira Iglesias et al has provided information on the future trends we may expect to see with regard to this problem. Urinary incontinence will continue to be a "silent epidemic" if firm action is not taken. Awareness-raising campaigns and training efforts are needed both for the general population and for the health professionals that care for the population. Health care professionals undoubtedly need more training to deal with UI (and in fact, the Spanish Society of Family and Community Medicine has a working group on UI). But in addition, working conditions, currently inadequate in the area of primary care in Spain, must be improved to ensure that the problem receives the attention it deserves.

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