

Lower Urinary Tract Symptoms in Primary Care – A Multicenter Community-Based Study in Israel

Pesach Shvartzman MD¹, Howard Tandeter MD¹, Aya Peleg MD¹, Hava Tabenkin MD², Nakar Sasson MD³ and Jeffrey Borkan MD PhD³

¹Department of Family Medicine, Unit of Health Promotion and Preventive Medicine, Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer Sheva, ²Department of Family Medicine, HaEmek Medical Center [affiliated to Faculty of Health Sciences, Ben-Gurion University of the Negev], and ³Department of Family Medicine, Sackler Faculty of Medicine, Tel Aviv University, Israel

Key words: lower urinary tract symptoms, primary care, prostatism

Abstract

Background: Lower urinary tract symptoms are highly prevalent in older men, have been shown to affect men's quality of life, and may be associated with more serious outcomes.

Objectives: To determine the prevalence of LUTS among men aged 50 years or older registered at family practice centers in Israel and to assess the effect of these complaints on different aspects of their life.

Methods: In a random sample cohort of men aged 50 years and older, fluent in Hebrew, drawn from those registered in four family clinics in Israel, patients identified with LUTS were interviewed by phone using a structured questionnaire.

Results: The prevalence of LUTS in our study was 21%. Less than a third of these patients had low severity LUTS (28%), 59% were rated moderate, and 13% had severe symptoms. Age had a positive correlation with the severity of LUTS, and increasing severity of symptoms had a negative effect on the daily function and quality of life of patients.

Conclusions: Our community-based study shows that LUTS is a common finding among men above the age of 50 (21%) and has a significant negative effect on their quality of life and daily function. Knowledge of these data should make primary care physicians more aware of this common problem and thus improve the treatment and quality of life of these patients by better identification and prompt treatment.

IMAJ 2001;3:497–500

Prostate-related symptoms – “prostatism” or “lower urinary tract symptoms” (LUTS) – are common in older men and are seen as an almost universal consequence of aging [1]. Community-based population studies have shown that 8–31% of men in their fifties and 27–44% of men in their seventies have moderate to severe symptoms of prostatism [2–7]. Symptoms are generally related to bladder voiding function and may include nocturia,

increased urinary frequency, urgency, hesitancy and intermittency, weak stream, and incomplete bladder emptying. Prostatism has been shown to affect men's quality of life [8–10], and may be associated with more serious outcomes such as urinary outlet obstruction [11] and a decline in health status [12,13].

Since this problem is so common and has such an impact on males and their families, it is essential that family physicians be aware of the prevalence of this problem in their practice. This study was designed to determine the prevalence of prostate-related symptoms among men aged 50 years or older registered at family practice centers in Israel and to assess the effect of these complaints on their quality of life.

Methods

Sites and subjects

The cohort was obtained by interviewing a random sample of men aged 50 years and older, drawn from those registered at four family medicine centers in Israel [Table 1]. The four centers are part of the Clalit Health Services Sick Fund, the largest health maintenance organization in Israel that serves over 65% of the total population. These centers are located in two metropolitan urban areas in the south and center of the country (Beer Sheva and Rehovot), a development town (Migdal HaEmek) and a large communal rural settlement (kibbutz), both in the north of Israel. The centers serve a heterogeneous Jewish population with origins mainly in Eastern Europe, North Africa, Asia and Israel.

Inclusion criteria included male gender, age older than 50, fluency in spoken Hebrew, and availability by telephone. Of the 4,256 men who met the inclusion criteria, 38% (n = 1,617) were randomly selected for an interview.

Data collection

Trained research interviewers conducted the telephone interviews. The study questionnaire, which underwent pilot testing, included demographic data, current and past medical problems, medications, lower urinary tract symptoms, and questions regarding different aspects of life-functioning as subjectively perceived by the patients. A Hebrew version of the International Prostate Symptom Score (I-PSS) was used to quantify the

LUTS = lower urinary tract symptoms

Table 1. Demography of study population (n = 1,617)

Variables	Whole sample		Patients with LUTS		No urinary symptoms		P
	No.	%	No.	%	No.	%	
Country of birth							
Israel	160	10	30	9	130	10	
South America	72	5	17	5	55	4	
Eastern Europa	882	55	187	56	695	55	
Western Europa/ North America	31	2	7	2	24	2	NS
North Africa/Asia	458	28	92	28	336	29	
Total	1,603	100	333	100	1,270	100	
Place of residence							
Beer Sheva	963	60	186	56	777	61	
Migdal HaEmek	305	19	73	22	232	18	
Rehovot	221	14	60	18	161	13	< 0.01
Kibbutzim	117	7	15	4	102	8	
Total	1,606	100	334	100	1,272	100	
Marital status							
Married	1456	91	294	88	1162	91	
Unmarried	147	9	39	12	108	9	NS
Total	1,603	100	333	100	1,270	100	
Age (yr)							
50–64	779	47	131	39	648	48	
65–79	666	40	174	52	492	37	
80+	128	8	28	8	100	7	< 0.001
Total	1,573	94	333	100	1,240	93	
Employment status							
Full/part time work	621	38	87	26	534	42	
Unemployed/Retired	985	62	247	74	738	58	< 0.001
Total	1,606	100	334	100	1,272	100	

severity of LUTS. This instrument has been previously validated and adopted as a symptom assessment tool for patients suffering from prostatism [12]. The I-PSS comprises seven questions related to urination to which subjects respond using a 6-point Likert Scale. An eighth question probes the average number of episodes of nocturia during the previous month, and a further question relates to the effect of LUTS on the subjective influence on quality of life. This instrument was translated and back-translated and adapted to the Israeli cultural context. Other questions that related to issues such as sleep, sexual relations, travel, entertainment and socializing utilized a simple “yes” or “no” format and a 4-point scale.

Data analysis

Data were collected onto preprinted questionnaires and entered into a database using Epi-info 6.01. The SPSS-PC statistical software program was used to analyze the data, including the Fischer exact and *t*-test as needed. A $P < 0.05$ was defined as statistically significant.

I-PSS = International Prostate Symptom Score

Table 2. Health status of study population (n = 1,617)

Variables	Whole sample		Patients with LUTS		No urinary symptoms		P
	No.	%	No.	%	No.	%	
Previous surgery							
Yes	947	59	221	66	726	57	
No	659	41	113	34	546	43	< 0.01
Total	1,606	100	334	100	1,272	100	
Previous prostate surgery							
Yes	135	8	27	8	108	8	
No	1,470	92	306	92	1,164	92	NS
Total	1,605	100	333	100	1,272	100	
Previous urinary bladder surgery							
Yes	12	1	6	2	6	1	
No	1,592	99	327	98	1,265	99	< 0.05
Total	1,604	100	333	100	1,271	100	
Previous prostate cancer surgery							
Yes	11	1	5	2	6	1	
No	1,593	99	328	98	1,265	99	NS
Total	1,604	100	333	100	1,271	100	
Previous urethral surgery							
Yes	7	1	3	1	4	1	
No	1,604	99	330	99	1,274	99	NS
Total	1,611	100	333	100	1,278	100	
Previous rectal surgery							
Yes	44	3	15	5	29	2	
No	1,558	97	318	95	1,240	98	< 0.05
Total	1,602	100	333	100	1,269	100	
Chronic disease							
Yes	1,030	64	262	79	768	60	
No	576	36	72	22	504	40	< 0.001
Total	1,606	100	334	100	1,272	99	
Parkinson							
Yes	18	2	6	2	12	1	
No	1,586	98	328	98	1,258	99	NS
Total	1,604	100	334	100	1,270	100	
Back problems							
Yes	260	17	92	28	168	13	
No	1,344	83	241	72	1,103	87	< 0.001
Total	1,604	100	333	100	1,271	100	
Neurological disorders							
Yes	38	2	15	4	23	2	
No	1,565	98	319	96	1,246	98	< 0.01
Total	1,603	100	334	100	1,269	100	

Results

Characteristics of the sample

The mean age of the 1,61 subjects was 65 ± 9.25 years. The demographic characteristics of the total study population and

the sample with LUTS, including country of birth, place of residence, marital status and age distribution, are shown in Table 1.

Subjects with LUTS

A total of 334 men in our cohort (21%) suffered from LUTS. Of these, 89 (28%) had low severity LUTS (I-PSS scores of 0–7), 189 (59%) were rated moderate (I-PSS scores 8–19), and 43 (13%) had severe symptoms (I-PSS scores 20–35). The population with prostate-related symptoms was significantly older. They also suffered from more chronic diseases and more medical problems [Table 2]. One-third of the subjects with LUTS ($n=106$) reported a worsening of their condition over the previous year.

Effects of LUTS on daily function

As seen in Table 3, LUTS had significant effects on daily function and relationships, effects that become more pronounced as LUTS become more severe. This is particularly true for such items as the need for water restriction before travel or sleep, refraining from long trips, or inadequate sleep ($P < 0.001$).

Discussion

Most of what we know about the epidemiology of prostatic disease comes from studies performed in patients referred to urology clinics [14]. The numbers obtained are obviously biased, since patients referred to these services tend to be more symptomatic or have more severe disease than other patients. Studies derived from community studies may better show the “true” prevalence of LUTS.

A wide variation was found in a four-nation, population-based, cross-sectional, age-related comparison study of men aged 50–79 [6]. Prevalence was lowest in France (14%) and in Scotland (18%), and highest in the USA (38%) and Japan (56%). Differences in the prevalence as measured by I-PSS scores might reflect cross-cultural differences in willingness to report potentially embarrassing symptoms [15] – differences in the true prevalence of prostatism and benign prostatic hypertrophy in different parts of the world.

Differences between other community-based studies found in the literature are large and may be based on the fact that they were performed using very different methodologies (numerical scoring, transrectal ultrasonography/gland heavier than 20 g, uroflowmetry, or different urinary symptom questionnaires like the AUASI or the IPSS). Marked differences were also found when comparing studies that used the same measuring tool (IPSS). The Baltimore Longitudinal Study of Ageing [16], for example, found that nearly 60% of men over age 60 had

Table 3 Life function effects and patients' urinary symptoms severity ($n = 334$)

Problem	I-PSS Severity n (%)								P
	Mild (0–7)		Moderate (8–19)		Severe (20–35)		Total (n = 334)		
	No.	%	No.	%	No.	%	No.	%	
Water restriction before trips	10	14	42	58	20	28	72	22	<0.001
Water restriction before sleep	12	15	49	62	18	23	79	24	<0.001
Refrain from long trips	4	9	30	64	13	28	47	14	<0.001
Regularly awoken at night to urinate	77	26	180	60	41	14	298	89	NS
Inadequate sleep	13	16	44	53	26	31	83	25	<0.001
Avoid cinema/theater	2	12	7	41	8	47	17	5	<0.01
Marital problems	2	8	14	54	10	38	26	8	<0.01
Sexual impairment	14	14	65	66	19	19	98	29	<0.01

prostatic related symptoms (clinical BPH). A study from the Netherlands found a prevalence of 30% [2], in a U.S. study it was 20% [8], in Canada 23% [5], in Spain 30.4% [17], in Japan 29–56% [18], and in Scotland 25–43% [19]. One should also be aware of the fact that these results are not 100% comparable due to methodological differences (different upper and lower age limits, and sample size).

Assessing quality of life is now recognized as an important component of the natural history of chronic prostatic disease. It is interesting to note the near linear relationship between severity of lower urinary tract symptoms and organ-specific quality of life measurements. The major factors influencing quality of life were the lack of ability to sleep through the night without waking up, and sexual impairment. Furthermore, the majority of patients with moderate symptoms exercised water restriction before sleep, a practice known to be ineffective. Sir Henry Thomson reported in 1909 that “one man in every five over the age of 50 suffers from benign prostatic hyperplasia” [14]. The rate of LUTS found in our study (21%) is similar to that historical description.

The present community-based study provides figures on the prevalence of LUTS in Israel and its effect on life functions as perceived by patients aged 50 and older. The methodology used in this study render these data suitable for comparison with other community-based studies performed in different countries that used the same questionnaire. The population studied was large and the sample reflects the different types of populations in this country. However, we have to take into account that eligibility criteria required fluency in Hebrew and the availability of a telephone. Such restrictions excluded recent immigrants with language difficulties. This may have biased the screened population as well as the outcome. A different cultural environment may impact upon the apprehension of symptoms.

Knowledge of these data by primary care practitioners should make them sensitive to the suffering of their older male patients, especially with regard to urinary tract symptoms and reduced quality of life.

BPH = benign prostatic hypertrophy

Acknowledgments. This work was funded by a grant from Assia-Riesel.

References

1. Abrams P. New words for old: lower urinary tract symptoms for "prostatism". *Br Med J* 1994;308:929–30.
2. Bosch JLHR, Hop WCJ, Kirkels WJ, Schroder PH. The international prostate symptom score in a community-based sample of men between fifty-five and seventy-five years of age: prevalence and correlation of symptoms with age, prostate volume, flow rate and residual urine volume. *Br J Urol* 1995;75:622–30.
3. Chute CG, Panser LA, Girman CJ, Chute CG, Panser LA, Girman CJ, Oesterling JE, Guess HA, Jacobsen SJ, Lieber MM. The prevalence of prostatism: a population-based survey of urinary symptoms. *J Urol* 1993;150:85–9.
4. McKelvie GB, Collins GN, Hehir M, Rogers AC. A study of benign prostatic hyperplasia – a challenge to British urology. *Br J Urol* 1992;71:38–42.
5. Norman RW, Nickel JC, Fish D, Pickett SN. Prevalence of prostate related symptoms in Canadian men over 50 years of age. *J Urol* 1993;149:356A.
6. Sagner PP, Girman CJ, Garraway M, Kumamoto Y, Lieber MM, Richard F, MacFarlane G, Guess HA, Jacobsen SJ, Tsukamoto T, Boyle P. International comparison of the community prevalence of symptoms of prostatism in four countries. *Eur Urol* 1996;29:12–20.
7. Sommer P, Nielsen KK, Bauer T, Kristensen ES, Hermann GG, Steven K, Nordling J. Voiding patterns in men evaluated by a questionnaire survey. *Br J Urol* 1990;65:155–60.
8. Barry MJ, Fowler FJ. The methodology for evaluating the subject outcomes of treatment for benign prostatic hyperplasia. *Adv Urol* 1993;6:83–9.
9. Fowler FJ, Barry MJ. Quality of life assessment for evaluating benign prostatic hyperplasia treatments. *Eur Urol* 1993;24(Suppl):24–7.
10. Hunter DJ, McKee M, Black NA, Sanderson CF. Health status and quality of life of British men with lower urinary tract symptoms: results from the SF-36. *J Urol* 1995;45:962–71.
11. Lytton B, Emery JM, Harvard BM. The incidence of benign prostatic obstruction. *J Urol* 1968;99:639–45.
12. Barry MJ, Fowler FJ Jr, O'Leary MP, Bruskewitz RC, Holtgrewe HL, Mebust WK. Measuring disease-specific health status in men with benign prostatic hypertrophy. *Med Care* 1995;33:AS145–55.
13. Tsang KK, Garray VM. Impact of benign prostatic hypertrophy on general well-being of men. *Prostate* 1993;23:1–7.
14. Girman CJ. Population-based studies of the epidemiology of benign prostatic hyperplasia. *Br J Urol* 1998;82(Suppl 1):34–43.
15. Roberts RO, Rhodes T, Panser LA, Girman CJ, Chute CG, Oesterling JE, Lieber MM, Jacobsen SJ. Natural history of prostatism: worry and embarrassment from urinary symptoms and health care seeking behavior. *J Urol* 1994;43:621–8.
16. Arrighi HM, Metter EJ, Guess HA, Fozzard JL. Natural history of benign prostatic hyperplasia and risk of prostatectomy; the Baltimore longitudinal study of aging. *J Urol* 1991;35 (Suppl):4–8.
17. Hunter DJW, Berra-Unamuno A, Martin-Gordo A. Prevalence of urinary symptoms and other urological conditions in Spanish men 50 years old and older. *J Urol* 1996;155:1965–70.
18. Tsukamoto T, Kumamoto Y, Masumori N, Miyake H, Rhodes T, Girman CJ, Guess HA, Jacobsen SJ, Lieber MM. Prevalence of prostatism in Japanese men in a community-based study with comparison to a similar American study. *J Urol* 1995;154:3911–15.
19. Garraway WM, Collins GN, Lee RJ. High prevalence of benign prostatic hypertrophy in the community. *Lancet* 1991;338:469–71.

Correspondence: Dr. P. Shvartzman, Chairman, Division of Community Health, Ben-Gurion University of the Negev, P.O. Box 653, Beer Sheva 84105, Israel. Phone: (972-8) 647-7429/30, Fax: (972-8) 647-7636, email: spesah@bgumail.bgu.ac.il