

PREVALENCE OF LOWER URINARY TRACT SYMPTOMS AMONG MEN IN A RURAL DISTRICT OF WESTERN TURKEY

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ABSTRACT

Objectives: The aim was to determine the prevalence of lower urinary tract symptoms (LUTS) in men aged 40 years or older, as well as to compare characteristics of patients with and without LUTS.

Methodology: The paper is a cross-sectional survey conducted on men with LUTS in a district of western Turkey between November 1st and December 31st. The questionnaire was filled in by a face to face method, and consisted of the men's socio-demographic characteristics, LUTS related characteristics, and the questions pertaining to international prostate symptom score (IPSS).

Results: The prevalence of LUTS was 51.5%. The comparative analyses between patients who had and those who did not have LUTS showed that patients in settlement area Kaymaz, those aged 70 and over, those with primary school education and below, those who were married, those who had recurrent UTI, those who were using medicines continuously, those with a history of previous surgery, those with family history of LUTS had a higher prevalence of LUTS.

Conclusion: In conclusion the number of the respondents having LUTS was common among men in this region of Turkey.

KEY WORDS: LUTS, Men aged 40 and over, Prevalence, Risk factors, Turkey.

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INTRODUCTION

Lower urinary tract symptoms (LUTS) suggestive of benign prostatic hyperplasia (BPH) are a common condition in elderly men, which is an important public health problem. BPH is an important cause of LUTS. Thus, the term LUTS is used to define the complex of those symptoms instead BPH.¹ It has been known that LUTS are more frequently seen in older men with the chronic events such as cerebrovascular disease, diabetes mellitus, and parkinsonism.²

LUTS are not specific to only one condition or disease since it can be seen in many diseases, and can be affected by factors unrelated to prostatic conditions, including diet, fluid intake,

alcohol intake, and anticholinergic effects of commonly used medications available without prescription.³

Although the etiology of LUTS has not been exactly exposed, advanced age and androgens are considered to play a permissive role in BPH by most experts and to be the best known risk factors for LUTS.⁴

It is a disease intimately related to the aging process, which is characteristically a disease of males above the age 40. After this age, the prevalence of it rises sharply, being at least 50% for all men at the age 50. The incidence of BPH rises to at least 80% of all men in their eighth decade of life.^{2,4}

There are some studies indicating that the prevalence of moderate and severe LUTS ranged between 24.0% and 50.0%.^{5,6} Various researches reported that the prevalence of LUTS is between 23.0% and 89.0%.⁶ Similarly, some studies from Turkey showed that the prevalence of LUTS is between 17.8% and 85.2%.^{7,8}

Although LUTS are not threat factors for life, they affect negatively most men's life style and quality of life (QoL).⁹ In result, most of men concerned need medical care due to LUTS, causing the considerable economic and societal burden.¹⁰

Several tools have been developed to measure LUTS in BPH and the best-known tool for evaluating symptoms is the International Prostate Symptom Score (IPSS). This scoring system is used to calculate LUTS voiding symptom severity and frequency.¹¹

In this study, our objectives were to determine the frequency and severity of LUTS in men aged 40 years or older, as well as to compare characteristics of patients with and without LUTS.

METHODOLOGY

This is a cross-sectional survey of men with LUTS and some characteristics particularly seen in patients with LUTS in three towns in a rural district of western Turkey, called Sivrihisar, Alpu and Kaymaz. It was conducted on all the men aged 40 and over between Nov., 1st, 2008 and Jan., 31st, 2009. The total number of men living in the the towns aged 40 and over was

875. A total of 116 individuals were unable to participate in the study due to the individuals' not being at home, and some individuals' not accepting to our invitation to participate at that particular time. After exclusion of 116 men, the study group comprised of 759 men (759/875=86.7%). The questionnaire consisted of two parts. The first part of the questionnaire included the individuals' socio-demographic characteristics, cigarette and alcohol habits, history of any chronic disease diagnosed by a physician, history of Recurrent Urinary Tract Infection (RUTI), continuous drug use, history of medical operations, and family history of LUTS. In addition, this part included information pertaining to the subjects' body mass index (BMI). The second part of the questionnaire evaluated the questions related to IPSS scale to evaluate the diagnosis and severity of LUTS.¹² Heights were measured with tapes, and weights with a domestic-type weighbridge. Patients were considered to be obese if they had a BMI of 30kg/m² or more.¹³

A comparative analysis was done comparing the characteristics of those with and without LUTS. The statistical analysis was carried out using Chi-square (χ^2) test for categorical variables, t-test for continuous variables. $p < 0.05$ was considered as statistically significant. Ethical permission for the study was obtained prior to collection of data, by contacting and receiving approval from the appropriate management authority.

RESULTS

The age average of 759 men was 56.63 ± 11.39 (range=40-91). The mean score that the study men obtained from IPSS scale was 6.84 ± 7.85 (from 0 to 35). The prevalence of LUTS was 51.5% (n=391).

It was found that 37.8% of men (n=287) had any chronic disease diagnosed previously by a physician. In those who had any chronic disease, the prevalence of LUTS was 64.8% (n=186). The detailed socio demographic and medical characteristics of the study subjects and the distribution according to some characteristics of those with LUTS and without LUTS are presented in Table-I.

Table-I: The distribution of those with LUTS and without LUTS according to some characteristics

<i>Some characteristics</i>	<i>LUTS</i>			<i>Analysis p-value</i>
	<i>No n (%)</i>	<i>Yes n (%)</i>	<i>Total n (%)</i>	
<i>Settlement location</i>				
Alpu	154 (57.0)	116 (43.0)	270 (35.6)	0.0001
Sivrihisar	147 (48.5)	156 (51.5)	303 (39.9)	
Kaymaz	67 (36.0)	119 (64.0)	186 (24.5)	
<i>Age groups (years)</i>				
40-49	153 (64.0)	86 (36.0)	239 (31.5)	0.0001
50-59	126 (54.5)	105 (45.5)	231 (30.5)	
60-69	60 (35.7)	108 (64.3)	168 (22.1)	
70 and over	29 (24.0)	92 (76.0)	121 (15.9)	
<i>Education level</i>				
Primary school and below	248 (45.5)	297 (54.5)	545 (71.8)	0.009
Secondary school and over	120 (56.1)	94 (43.9)	214 (28.2)	
<i>Marital status</i>				
Single	22 (73.3)	8 (26.7)	30 (4.0)	0.001
Married	324 (49.1)	336 (50.9)	660 (87.0)	
Widower	22 (31.9)	47 (68.1)	69 (9.0)	
<i>Have a job</i>				
Yes	343 (47.7)	376 (52.3)	719 (94.7)	0.06
No	25 (62.5)	15 (37.5)	40 (5.3)	
<i>Have any health insurance</i>				
Yes	340 (48.2)	365 (51.8)	705 (92.9)	0.60
No	28 (51.9)	26 (48.1)	54 (7.1)	
<i>Smoking cigarette</i>				
Yes	212 (53.1)	187 (46.9)	399 (52.6)	0.007
No	156 (43.3)	204 (56.7)	360 (47.4)	
<i>Alcohol consumption</i>				
Yes	65 (48.9)	68 (51.1)	133 (17.5)	0.92
No	303 (48.4)	323 (51.6)	626 (82.5)	
<i>Any chronic disease</i>				
Yes	101 (35.2)	186 (64.8)	287 (37.8)	0.0001
No	267 (56.6)	205 (43.4)	472 (62.2)	
<i>Recurrent urinary tract infections (RUTI)</i>				
Yes	27 (25.5)	79 (74.5)	106 (14.0)	0.0001
No	341 (52.2)	312 (47.8)	653 (86.0)	
<i>History of continuously medicine use</i>				
Yes	75 (33.6)	148 (66.4)	223 (29.4)	0.0001
No	293 (54.7)	243 (45.3)	536 (70.6)	
<i>History of previous surgery operation</i>				
Yes	100 (38.6)	159 (61.4)	259 (34.1)	0.0001
No	268 (53.6)	232 (46.4)	500 (65.9)	
<i>Family history of LUTS</i>				
Yes	82 (40.4)	121 (59.6)	203 (26.7)	0.007
No	286 (51.4)	270 (48.6)	556 (73.3)	
<i>Obesity</i>				
Yes	69 (50.7)	67 (49.3)	136 (17.9)	0.56
No	299 (48.0)	324 (52.0)	623 (82.1)	
Total	368 (48.5)	391 (51.5)	759 (100)	

According to Bivariate analysis results, significant differences were revealed between the frequency of LUTS seen in men and men's settlement location, age group, educational level, having any chronic disease diagnosed by a physician, RUTI, history of continuous medicine use, history of previous surgery operation, and family history of LUTS.

Of the 391 men who had LUTS (51%), the distribution of the severity of LUTS cases was as follows: mild 29.7% (n=116), moderate 52.2% (n=204), severe 18.1% (n=71). The distribution of the severity of LUTS cases according to age groups is presented in Table-II.

In this study, as age advanced the prevalence of LUTS increased ($p < 0.05$) and it was determined that this increase was more significant especially in the age group of 70 and over ($p < 0.05$).

DISCUSSION

In this study, the prevalence of LUTS was rather high (51.5%). This is consistent with other studies which have shown that the prevalence of LUTS seen in men ranged from 16.2% to 85.2%.^{8,14}

As age advanced, it is an expected status that the prevalence of LUTS seen in men increases. In this study, it was found that the prevalence of LUTS showed increase with age ($p < 0.05$) and that this increase was more significant especially in the age of 70 and over ($p < 0.05$). In parallel, according to logistic model results, an advanced age was an important risk factor for LUTS (OR=4.060; $p < 0.01$) in line with many research results.^{14,15}

Educational level plays an important role in being the individuals' aware of LUTS, their seeking treatment and their harmony to treatment. In parallel, Signorello et al. (1999) reported that as education level increased LUTS risk decreased and in result, that this positive relationship is related to the fact that those whose education level are higher reach to health services easily.¹⁶ In this study, the frequency of LUTS was found to be low in those whose education level was secondary school and below ($p < 0.05$). This result is compatible with many studies showing that the prevalence decreased with an increase in the educational level.^{17,18}

In the current study, the prevalence of LUTS was significantly higher in married men compared to single ones ($p < 0.05$). This finding is in line with other studies showing similar results.^{19,20} But, any satisfactory explanation related to the fact that married men have more LUTS has not been done up to now. Thus, future studies should continue to assess the impact of being single or married on prevalence of LUTS in individuals.

Nicotine increases sympathetic nervous system activity¹¹ and might contribute to LUTS via an increase in the tone of the prostate and bladder smooth muscle²¹ in consistent with some studies indicating that those smoke cigarette had more prevalence of LUTS.¹⁸ Similarly, our study revealed that the prevalence of LUTS was significantly higher in those smoke cigarette than in those not smoking ($p < 0.05$).

In the current research, in those who had any chronic disease diagnosed by a physician, the prevalence of LUTS was significantly higher

Table-II: Distribution of the severity of LUTS cases by age groups

Age group	Severity of LUTS cases			Total n (%)
	Mild n (%)	Moderate n (%)	Severe n (%)	
40-49	48 (55.8)	34 (39.5)	4 (4.7)	86 (22.0)
50-59	35 (33.3)	54 (51.4)	16 (15.2)	105 (26.9)
60-69	21 (19.4)	64 (59.3)	23 (21.3)	108 (27.6)
70 and over	12 (13.0)	52 (56.5)	28 (30.4)	92 (23.5)
Total	116 (29.7)	204 (52.2)	71 (18.2)	391 (100.0)

($p < 0.05$). This is consistent with other studies.^{22,23} Urinary infection is a reversible condition that cause or contribute to LUTS. An advanced age is a factor which increases RUTIs; in parallel, RUTIs are one of the important risk factor for LUTS.²⁴ Similarly, in this study, there was a significant relationship between those with the history of RUTIs and the prevalence of LUTS, being higher the prevalence of LUTS in those with a history of RUTIs ($p < 0.05$). In addition, according to logistic regression model results, it was found that history of RUTI was a significant risk factor (OR=2.739; $p < 0.01$). Litman et al (2007) also reported that RUTIs increase the risk of LUTS and that RUTIs cause to obstruction to urinary tract system.²⁵

In those who used continuous drug in the study group, the prevalence of LUTS was higher ($p < 0.05$). This result could be explained that the most frequently existing diseases among the reasons of continuous drug use are chronic diseases.

Gates et al (2005) indicated that there was a meaningful connection between prevalence of LUTS and some surgery operations such as those of prostate, lumber spine, vesica and brain,²⁶ in parallel with our study results showing that in those with history of previous surgery operation, the prevalence of LUTS was found to be significantly higher ($p < 0.05$).

In those with family history of LUTS, the prevalence of LUTS was significantly higher ($p < 0.05$). In addition, according to logistic model results, we found that family history of LUTS was an important risk factor for LUTS (OR=1.669; $p < 0.01$). In parallel, some researchers reported similar results indicating that family history is an important risk factor for BPH. The same researchers showed that outosomal dominant inheritance is responsible for BPH.²⁷

In this study, 52.2% and 18.2% of LUTS cases had moderate and severe symptoms, respectively. It was recognized that, with the increasing age, the prevalences of moderate and severe LUTS showed increase ($p < 0.05$). In similar, many studies indicated that the severity of LUTS increased with age.^{14,28}

In conclusion, the prevalence of LUTS in older men was relatively high throughout our study in rural regions. The protective measures, misconceptions about LUTS need to be addressed by health education programs targeting those at higher risk, or men aged 40 and over.

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