A population based epidemiological study on benign prostatic obstruction in a suburban district of Istanbul

Selim prostatik obstrüksiyon üzerine İstanbul'un bir banliyösünde gerçekleştirilen toplum temelli epidemiyolojik bir çalışma

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Abstract

Objective: To determine the prevalence of lower urinary tract symptoms (LUTS) suggestive of benign prostatic obstruction (BPO) in men over 40 years of age.

Material and methods: The data of this population-based cross-sectional study was obtained from male inhabitants of a suburban Kucukcekmece district of Istanbul. Our sample consisted of 754 men over 40 years of age. A questionnaire covering data about personal habits and behavior, social and demographic characteristics, level of knowledge about LUTS and the treatment of BPH, and International Prostate Symptom Score (IPSS) form were applied to this sample as well. Meanwhile, urinary flow rates and serum prostatic spesific antigen (PSA) levels were evaluated.

Results: Fourty-one percent of the participants had voiding complaints serious enough to interfere with their daily activities. Twelve percent of the participants reported more than one complaint. According to IPSS, the most frequent symptoms were nocturia, weak urinary stream and frequency. The degree of severity of symptoms increased significantly with aging. A negative correlation was observed between IPSS scores and maximum urinary flow rates (Qmax). Moreover, a positive association was found between IPSS and PSA, while a significant negative association was observed between PSA and Qmax values. The lowest prevalence (4.1%) was found when BPO was characterized with IPSS>19, Qmax<10 ml/sec and (Quality of Life) score≥3 and the highest prevalence (34.9%) was detected when only patients with IPSS scores higher than 7 were defined as patients with BPO.

Conclusion: The prevalence rates revealed a wide variation from 4.1% to 34.9% according to different criateria used as surrogate measures for BPO.

Key words: BPH; epidemiology; IPSS; LUTS, prevalence; risk factors.

Özet

Amaç: Kırk yaş üstü erkeklerde, benign prostatik obstrüksiyonunun (BPO) göstergesi olan alt üriner sistem semptomlarının (AÜSS) prevalansını belirlemek.

Gereç ve yöntem: Bu toplum temelli, enine kesitsel çalışmanın verileri İstanbul'un bir banliyösü olan Küçükçekmece'nin erkek nüfusundan elde edilmiştir. Çalışma grubu 40 yaş üstü 754 erkeği içermektedir. Bu gruba, kişisel alışkanlık ve davranış şekilleri, sosyal ve demografik özellikler, AÜSS'ları ve BPH tedavisi hakkındaki bilgi düzeyini içeren bir anket ile birlikte Uluslararası Prostat Semptom Skorlaması (IPSS) uygulandı. Aynı zamanda, üriner akım hızı ve serum prostat spesifik antijen (PSA) düzeyleri değerlendirildi.

Sonuçlar: Katılımcıların %41'inde günlük aktivitelerini etkileyecek kadar ciddi işeme şikayetleri saptandı. Katılımcıların %20'sinde birden fazla şikâyet tanımladı. IPSS sonuçları değerlendirildiğinde noktüri, zayıf işeme akım hızı ve sık idrara çıkma en sık rastlanan semptomlardı. Semptomların ciddiyeti yaşla birlikte belirgin olarak artış göstermekteydi. IPSS skorları ve maximum akış hızı (Qmax) arasında ters bir ilişki gözlendi. Ayrıca, PSA ve Qmax değerleri arasında belirgin bir ters bir ilişki gözlenirken, IPSS skoru ve PSA arasında doğru orantılı bir ilişki bulundu. IPSS>19, Qmax<10 ml/sn ve QOL ≥3 ile karakterize BPO olguları en düşük prevalansı (%4.1) oluştururken sadece IPSS skorunun 7'den fazla olduğu BPO olguları en yüksek prevalans (%34.9) grubunu oluşturmaktaydı.

Sonuç: BPO göstergesi olarak kullanılan farklı kriterlere göre, çalışmadaki prevalans oranları %4.1'den %34.9'a kadar değişen geniş bir aralıkta bulunmuştur.

Anahtar sözcükler: AÜSS, BPH; eidemiyoloji; IPSS; prevalans; risk faktörleri.

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Introduction

Gradually increasing life-time expectancy and consequently the demographic aging in almost all countries of the world have caused an increase in cases of both BPH and prostate cancer.[1-3] In the developed countries, the proportion of the population over 65 years of age, which today constitutes approximately 15% of the total population, will exceed 20 % in 2025.[4] As a consequence of an aging world population, BPH as well as LUTS constitute serious public health problems. However, a few epidemiological studies on benign prostatic obstruction (BPO) (or LUTS suggestive of BPH prevalence) have been performed in Turkey, and none of them has been published in the English language. Accordingly, this study has been conducted to determine the actuarial prevalence of BPO and associated risk factors as well as the impact of BPO on the quality of life in Turkish population.

Material and methods

This cross-sectional epidemiological research was planned and conducted by a team of researchers from the Departments of Urology and Public Health of our institution, and the primary health care physicians working in a suburban district (Küçükçekmece) in Istanbul. The total population of this district reached 102.000 at the time (2001) of this study. Among the registered population to the primary health care centers, 11325 were men over 40 years of age. The probabilistic sample included 4 domains of the age groups 40-49, 50-59, 50-59, 60-69 and 70 years or older. Using a stratified random sampling technique, we selected a sample of 903 men. The study sample was designed to ensure a sample error less than 5% of the estimator of BPO prevalence for each age group with 95% confidence interval. After identifying the study participants, the survey cohort members were visited in their home by trained study assistants for explaining the aims and requirements of the study in order to enrol maximum number of participants possible and a booklet specifically related to the current study, LUTS suggestive of BPO and BPH was delivered.

A questionnaire evaluating the level of knowledge about LUTS, treatment of BPO, personal habits (past medical history, smoking) and other social (occupation, education level, marital status, income per month) and demographic features (age, place of birth, weight and height) was delivered to all subjects during the visit at the primary healthcare centers. In addition, International Prostate Symptom Score (IPSS) form; that was previously validated in Turkish was applied and a blood samples were collected for determining serum total PSA level (Elecsys®, 1010/1020 modular analytics, Roche Diagnostics GmbH, Mannheim, Germany) at the endocrinology laboratories of the university hospital. Afterwards, all subjects underwent a physical examination including digital rectal examination (DRE) performed by the same physician (NU). Finally the urine flow parameters (Q_{max}, Q_{ave}, voided volume) were measured using Life-Tech uroflowmeter (Strafford, Texas, USA).

Statistical analyses

The level of significance of the differences between means and ratios were evaluated using *chi*-square (χ^2), Mann- Whitney U and Kruskall-Wallis test, and the correlations were analyzed through the Spearman Rank correlation test.

Results

During the study period, the sample size decreased to 829 subjects, since the remaining subjects did not agree to participate in the study. Among the participants, 16 were excluded for various reasons such as prostatic surgery. Furthermore, 59 individuals with significant suspicion of having prostate cancer during DRE were also excluded. Consequently, the response rate was calculated as 91.8% and the final study group who met the inclusion criteria consisted of 754 men with a mean age of 59.89±10.07 (40-82). Demographic features of the study group are given in Table 1**.**

According to the answers given to question Q1 of the questionnaire (Appendix), 30% of the study sample had no idea about prostate and 31% defined it as "a disease of the urinary tract" (Table 2). Meanwhile, 33% (n=250) of the participants had no knowledge about LUTS (Q2); 57.6% (n=435) of the participants cited one symptom, whereas 9.1% (n=69) could cite more than one symptom. The most frequent complaint was frequency (Table 3).

Responses of the participants to Q3 revelaed that; 41% (n=309) of the participants had voiding complaints serious enough to affect their daily activities according to their complaints that they mentioned in Q2 (Tables 3 and 4). Twelve percent of the participants mentioned more than one complaint.

According to Q4; 16.4% of the participants applied to a physician whereas 66.7% had not and 16.8% of the participants considered applying soon.

Table 1. The principal characteristics of the study group

Variables		n	%
Age (year)			
	40-49	157	20.8
	50-59	243	32.2
	60-69	202	26.8
	70≥	152	20.2
	Total	754	100.0
Marital status			
	Married	691	91.6
	Not married	63	8.4
Duration of marriage (year)			
	0-10	14	1.9
	11-20	82	10.9
	21-30	307	40.7
	31-40	231	30.6
	41-50	74	9.8
	51-60	37	4.9
	61≥	9	1.2
Number of children			
	None	34	4.5
	1≥	720	95.5
Profession			
	Unemployed	3	0.4
	Worker	306	40.6
	Civil servant	27	3.6
	Retired worker	113	15.0
	Retired civil servant	105	13.9
	Liberal	114	15.1
	Farmer	86	11.4
Education			
	Can not read or write	157	20.8
	Can read and write	168	22.3
	Primary school	383	50.8
	High school	34	4.5
	Higher education	12	1.6
Smoking			
	Current smoker	267	35.4
	Never and past smoker	487	64.6

Table 2. Answers given by the study participants to the question "what is prostate?" according to the age groups

	40-49		50-59		60-69		>70	
	n	%	n	%	n	%	n	%
A disease of the urinary tract	47	29.9	83	34.1	61	30	41	27.0
Obstruction in the urinary tract	45	28.7	58	23.8	68	33.6	34	22.3
Mass in the urinary tract	11	7	29	12	27	13.3	22	14.4
A reproductive organ	1	0.6	2	0.8	0	0	4	2.7
Have no idea	53	33.8	71	29.2	46	22.7	51	33.5
Overall	157	100	243	100	202	100	152	100

Meanwhile; the suggested treatment alternatives for the patients who applied to a physician were oral medication (n=20, 16.1%), prostatic surgery (n=47, 37.9%) and watchful waiting (n=37, 29.8%) (Q5). In addition, 20 patients received other alternatives such as permanent urinary catheterisation. Of 47 patients who were candidates for prostatic surgery, none of them received this kind of treatment due to various reasons. Meanwhile, 20% of the participants mentioned prostate problems in other members of their family (Q6).

Table 3. Answers given by the study participants to Q2

Symptoms	N
Frequent urination	279
Have no idea	250
Can not urinate	103
Dysuria	59
Intermittent urination	39
Scattered urination	29
Urinary catheterization	25
Nocturia	23
Abdominal distension	20
Incontinence	9
Penile itching	4
Overall	840

Table 4. Answers given by the study participants about interference of their daily life by LUTS symptoms (Q3)

	N
I would not go to long rides with car and I would decrease the amount of fluid that I take.	67
I decrease the fluid that I take before going bed.	70
I frequently have to take shower because of dribbling	66
I feel tired during the day because of sleep disturbance during the night	74
I would not go to the places where I may have difficulty for reaching toilets	156
I have reluctance for going to cinemas, theatres and attend long-lasting meetings	3
Overall	436

LUTS: Lower urinary tract symptoms

Of the study sample, 45.8% had no idea about treatment alternatives for BPH (Q7); whereas 34.7% of the participants preferred to have oral medication (Table 5). Only 17.3% of the patients preferred surgical treatment alternatives for BPO. Meanwhile, 45.4% (n=342) of the participnats have no idea about prostate surgery; whereas 37.5% and 2.9% of the participants consider that prostate surgery may be seriously and moderately risky. Only 14.3% (n=107) of them declared that prostate surgery have a little risk. In adiditon, a significant portion (45.6%) of the participants declared that they obtained information from their intimates and only 61 of 754 (8.1%) patients reported that they had obtained information from their physicians (Table 6). Furthermore, the majority (n=480, 61%) of the participants were worrying about urinary incontinence after prostatic surgery (Q10). After incontinence, the participants were concerning about death during surgery (n=166, 22%), erectile dysfunction (n=44, 5%), failure of the operation (n=28, 4%), retrograde ejaculation (n=9, 1%) and bleeding (n=8, 1%). In addition, 26 (4%) participants signed more than one choice and 46 (6%) participants reported that they had no idea about the possible consequences of prostatic surgery.

According to the results obtained from IPSS, the most frequent LUTS were nocturia, weak urine stream and frequency. The least frequent symptom declared was urgency. Overall, 65% of the patients had mild, 24% moderate and 10% had severe LUTS (Table 7). The relationship between age and the severity of symptoms was statistically significant ($p<0.001$). The average values of IPSS increased significantly with aging and the same association could be observed when the scores are considered in three groups according to the degree of severity of symptoms (Table 8). The IPSS score of 8.8% of the subjects was 0. In addition, we detected a significant correlation between quality of life (QOL) and IPSS scores. Meanwhile, no significant association could be obtained between the mean IPSS and the level of education, smoking or alcohol consumption, nor body mass-index (BMI). Men suffering from diabetes,

Table 5. Preference of the study participants for the treatment alternatives for LUTS suggestive of BPO

Treatment alternative	N	%
Oral medication	262	34.7
Open surgery	64	8.4
TUR-P	51	6.7
Laser therapies	18	2
Balloon treatment	7	0.7
Watchful waiting	6	0.7
No idea	346	45.4%
Overall	754	100

Table 6. Answers given by the study participants to Q9

Source of information about prostate surgery	N	%
Relatives	144	19.1
Friends	200	26.5
Physician	61	8.1
Media	21	2.8
From books	9	1.2
No idea	319	42.3
Overall	754	100

Table 7. Severity of symptoms according to mean IPSS scores stratified according to age groups

Age group	40-49		50-59		60-69		70 ≥	
Mean IPSS score	3.97±4.33		5.93±5.88		9.27±7.51		12.55±7.84	
Mean Qol score								
Severity of symptoms	n	%	n	%	n	%	n	%
Mild (0-7)	137	86.7	181	75.1	113	55.9	60	39.2
Moderate (8-19)	19	12.0	51	21.2	61	30.2	55	35.9
Severe (20-35)	2	1.3	9	3.7	28	13.9	38	24.8

χ^2=112.2 (chi-square), p=0.001

Table 8. Age groups and types of symptoms

	40-49				50-59				60-69				70 ≥			
	<2		≥2		<2		≥2		<2		≥2		<2		≥2	
Symptoms	N	%	n	%	N	%	n	%	N	%	n	%	n	%	n	%
Incomplete emptying	147	93.0	11	7.0	187	77.6	54	22.4	141	69.8	61	30.2	66	43.1	87	56.9
Frequency	137	86.7	21	13.3	165	68.5	76	31.5	120	59.4	82	40.6	53	34.6	100	65.4
Intermittence	132	83.5	26	16.5	180	74.7	61	25.3	110	54.5	92	45.5	60	39.2	93	60.8
Urgency	156	98.7	2	1.3	225	93.4	16	6.6	178	88.1	24	11.9	91	59.5	62	40.5
Weak stream	136	86.1	22	13.9	176	73.0	65	27.0	101	50.0	101	50.0	70	45.8	83	54.2
Straining	148	93.7	10	6.3	213	88.4	28	11.6	138	68.3	64	31.7	104	68.0	49	32.0
Nocturia	118	74.7	40	25.3	143	59.3	98	40.7	96	47.5	106	52.5	39	25.5	114	74.5

hypertension or cardiovascular disease had higher incidence of LUTS than healthy men in the same age groups, but the differences were not significant.

All three uroflowmetry parameters (Q max, Q ave, voided volume) tend to decrease with aging (Table 9). Although, a significant correlation between Qmax values and each of the IPSS symptoms was detected, the most significant correlation was between Qmax values and the total IPSS score ($p<0.05$) (Table 10).

We could determine serum level of PSA in 571 (75.7%) men (Table 11). A positive correlation was obtained between age and total PSA values. In addition, the difference between total IPSS scores stratified according to its severity and serum PSA values, as well as Qmax values ≤15 ml/sec or >15 ml/sec and PSA values was statistically significant. Briefly, the mean PSA values for patients with mild, moderate and severe symptoms were 1.26±0.69, 1.50±0.85 and 2.33±1.39 ($p= 0.001$), respectively. Meanwhile, the mean PSA value for patients with Qmax values ≤15 ml/sec was 1.26±0.69 ng/ml, whereas this value was 1.81±1.12 ng/ml for Qmax values >15 ml/sec ($p= 0.001$). Furthermore, a significant negative association ($p<0.05$) was detected in our study group between PSA and BMI (Table 12).

The prevalence values revealed a wide variation from 4.1% to 34.9% according to the different criteria (Table 13). The lowest prevalence was found when BPO was defined as IPSS>19, Qmax<10 ml/sec and QOL score≥3 (4.1%) and the highest prevalence (34.9%) was found when only patients with IPSS scores higher than 7 were defined as patients with BPO. Meanwhile it was found as 24.8% in men with IPSS >7, QOL >3 and maximum urinary flow rate <15 ml/sec

Discussion

Data obtained from epidemiological studies is vital for allocating and managing health-care resources and assessing intervention strategies. Among the epidemiological methods, community-based sampling studies are more representative in general, allowing a better assessment of the relationships among urological criteria used as surrogate measures to assess BPO, risk factors and natural history. However, data obtained from a number of population based studies revealed that no single surrogate measure appears to lend itself well for use as a diagnostic instrument for BPO. For this reason, in a number of epidemiological studies, different surrogate measures were used to assess BPO. And in a community-based study, we found that the range of prevalence rates for BPO (or LUTS suggestive of BPH) depending on the surrogate measures used varied from 4.1% to 34.9% in men older than 40 years of age. Among these surrogate measures, IPSS >7 is generally the most widely used criterion. With this criterion, the preva-

Table 9. Urine flow parameters according to age groups

Parameters	40-49 yrs		50-59 yrs		60-69 yrs		≥ 70 yrs		Significance p
	$\bar{x}$	s.d	$\bar{x}$	s.d	$\bar{x}$	s.d	$\bar{x}$	s.d	
Mean Qmax	21.40	4.97	18.07	6.68	15.08	4.90	13.43	3.40	0.001
Mean Qave	12.95	2.61	10.67	3.41	9.62	4.13	7.69	2.93	0.001

Table 10. The comparison of Qmax values and IPSS

Variables included in the IPSS	Maximum urinary flow rate r (correlation coef.)	Statistical value (p)
Incomplete emptying	-0.582	0.000
Frequency	-0.562	0.000
Intermittency	-0.569	0.000
Urgency	-0.455	0.000
Weak stream	-0.565	0.000
Straining	-0.476	0.000
Nocturia	-0.556	0.000
Total score	-0.649	0.000

Table 11. The mean PSA values according to age brackets

Age group (yrs)	Number	Mean PSA (ng/mL)	Standard deviation	Median (ng/mL)
40-49	107	0.81	0.28	0.8
50-59	172	1.28	0.37	1.2
60-69	180	1.75	0.84	1.35
70 ≥	112	2.35	1.13	2.3
Total	571	1.53	0.88	1.25
p=0.001				

Table 12. Body mass index and PSA values

BMI (kg/m²)	Mean PSA (ng/mL)	Standard deviation	Median PSA (ng/mL)
<20	1.46	0.93	1
20-21.99	1.59	1.02	1.2
22-23.99	1.62	1.15	1.15
24-25.99	1.45	0.78	1.2
26-27.99	1.20	0.62	1.0
28-29.99	1.37	0.83	1.05
30-31.99	1.23	0.80	1
>32	1.35	0.88	1.1
p=0.012 (significant)			

lence of LUTS was found to be 34.9% which is quite similar to the studies conducted in Scotland, Olmstead County (Minnesota, USA), France, Japan, United States (4 different regions), Madrid (Spain), Canada, Ankara (Turkey) and Andalusia (Spain) (Fig. 1).[3-11] The small differences among above-mentioned studies may be due to ethnic and individual variations in the degree to which these symptoms are tolerated.

LUTS is not classified as a disease, but a symptom complex characterized by bothersome voiding. BPO can cause morbidity through bothersome LUTS and measurement of LUTS is important for evaluating the success of treatment. Currently, LUTS associated with BPO has been evaluated with IPSS. Our findings related to the correlation between aging and IPSS values are in accordance with those presented in other stud-

ies (Fig. 2).[4,6,10,12-14] According to our data, the most frequent lower urinary tract symptom was nocturia, followed by weak urine stream and frequency. And the least mentioned symptom was urgency. The frequencies of each lower urinary tract symptom was reported differently in various studies.[3-6,8] However, urgency was reported as one of the most frequent symptoms in most of these studies. The lower rate of urgency in Turkish population in comparison to other countries is not clear, but it might be related to the cultural differences. Meanwhile, the percentage of subjects without voiding complaints (IPSS=0) was also different among the studies reviewed. In the present study, 8.8% of the patients which were predominantly between 40-49 years of age had no LUTS. Similar results were obtained by Garraway et al. and Norman et al.[3,9] In many studies, the quality of life scores of the patients were significantly correlated with the total IPSS scores.[5,6,13,15] Similarly, in the present study, the mean Qol score for patients with mild symptoms was 1.37±0.78, whereas for patients with moderate and severe symptoms, they were 3.18±0.78 and 4.48±0.64, respectively, ($p< 0.001$).

Table 13. BPH prevalence in our sample according to different urodynamic criteria

Urodynamic BPH criteria	Total	n	%
I-PSS >7	754	263	34.9
I-PSS>7, Q max <15	754	203	27.0
I-PSS >7, Q max <15, QOL ≥3	754	187	24.8
I-PSS >19	754	77	10.2
I-PSS>19, Q max <15, QOL ≥3	754	73	9.7
I-PSS>19, Q max <10, QOL ≥3	754	31	4.1

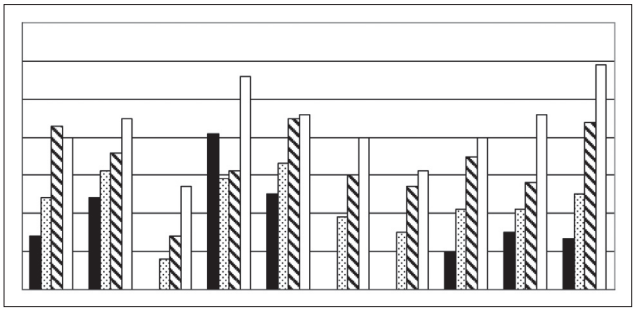

Figure 1 Prevelance of LUTS being defined as I-PSS ≥7 Note that the studies by Sagnier et al., Norman and Hunter (14,15,18) cover only men ≥50 years of age.

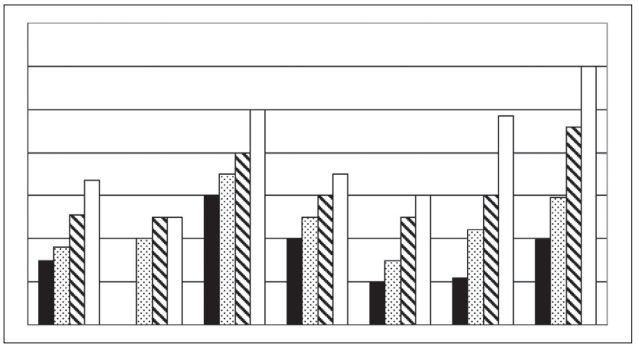

Figure 2 Mean IPSS scores according to age groups cited by different authors.

BPO can also be assessed by PSA levels. Our findings related to serum PSA levels revealed a positive correlation between age and serum PSA levels, which is similar with a number of cross-sectional studies.[16-20] On the other hand, we observed that, PSA levels tend to increase significantly with the degree of LUTS and showed a negative correlation with Qmax values. As a drawback, the prostate size could not be determined with ultrasound in the present study. However, Collins et al. and Bohnen et al. reported that prostate volume and PSA have age dependent correlation. Since it is clear that, larger prostates have higher PSA levels, the increase in PSA with age may be attributed to the enlarging prostate size with aging.[18,21]

According to the present study, the age-related differences in LUTS may be reported for urinary flow rates as well. Briefly, men at their 40s have Qmax around 21 ml/sec, whereas men at their 50s have Qmax around 13 ml/sec. Moreover, correlation analysis revealed that total IPSS score is the mostly correlated component of IPSS for Qmax values. This observation may advocate IPSS as a potentially good marker for prostatectomy indication.

It is generally believed that, the etiology of BPO (due to BPH) is multifactorial and up to date except for hormonal status no specific risk factor has been defined. However, it has been stated that diabetes mellitus (DM) and clinical BPH are associated more frequently.[22] However, recently, Burke et al. reported no significant association between the annual percentage of changes in prostate volume or serum PSA level and DM.[23] Thus the authors concluded that, the presence of DM may be less directly associated with prostate growth and more closely associated with the dynamic components of lower urinary tract function. According to our data, besides diabetes, men with hypertension or cardiovascular disease were found to have more severe LUTS than healthy men in the similar age bracket, but the differences were not statistically significant.

From another point of view, the present study mirrors the healthcare system of a developing country with limited resources for public avareness and education. According to our data, around 30% of the participants have no idea about prostate and 33% have no knowledge about LUTS. Despite 41% of the participants reported interference about their daily life by some urinary symptoms, only 16.4% of them visited ~~to~~ their physicians. In addition, of the participants who were candidates for prostatic surgery (37.9%) none of them received any surgical treatment. The 45.4% of all participants have no idea about prostate surgery and 40.4% of the participants found prostatic surgery seriously or moderately risky. Interestingly, a significant portion of the participants (22%) were afraid of death during surgery. And finally and more importantly, nearly half of the participants declared that they obtained information from their relatives and friends instead of their physicians (45.6% vs. 8.1%). Consequently, healthcare providers should give much importance to public awareness and education in order to avoid unfavorable consequences of BPO such as chronic renal failure and complicated urinary tract infection which undoubtly will increase the financial impact of BPO on the social healthcare system.

In the present study LUTS suggestive of BPO is found to be a common condition among elderly male population. There was a remarkable association between PSA, age, the severity of symptoms and Qmax.

Since no diagnostic test is conclusive alone for the diagnosis of BPO, BPO prevalence reports are very variable depending on the criteria used. Similarly, our prevalence values for BPO (or LUTS suggestive of BPO) showed a wide variation from 4.1% to 34.9% based on the criteria we used. Further studies with more standardized criterion is needed to determine the actuarial prevalence of BPO.

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Appendix: Questionnaire regarding prostate and prostate health.

Q1-What is prostate?

a- A disease of the urinary tract.

b- Obstruction in the urinary tract.

c- Mass in the urinary tract.

d- A reproductive organ.

e- I have no idea.

Q2-What is the major symptom or symptoms of BPO?

Answer: ……..

Q3-Do you have one of these symptoms that you have mentioned in the last question? Does it interfere with your daily life? Please check one or more of the following choices?

a-I would not go to long rides with car and I would decrease the amount of fluid that I take.

b-I decrease the fluid that I take before going to bed.

c-I frequently have to take shower because of urinary dribbling.

d-I feel tired during the day because of sleep disturbance during the night.

e-I would not go to the places where I may have difficulty for reaching toilets.

f-I have reluctance for going to cinemas, theatres and attending long-lasting meetings

g-I have not any complaint.

Q4-Have you ever visited your physician because of your urinary symptoms?

a-Yes

b-No

c-I consider visiting my physician soon.

Q5-What was the suggested treatment alternative by your physician for your LUTS?

a-Oral drugs

b-Operation

c-Watchful waiting

d-Others……..

Q6-Did you have any relatives that had been received treatment for BPO?

a- Yes b-No c-I do not know

Q7-What would be your preference if you have to choose one of the following treatment alternatives for BPO?

a-Open surgery

b-TUR-P

c-Laser operations

d-Baloon application

d-Oral drugs

e-Watchful waiting

f-I have no idea

Q8-How do you grade the risk of prostate surgery?

a-Very hazardous (like brain surgery)

b-Moderately hazardous (like stomach surgery)

c-Little hazardous (like inguinal hernia surgery)

d-I have no idea.

Q9-How did you get information about prostate surgery?

a-From my relatives (grandfather, father, uncle etc. having this experience).

b-From my friends

c-From my physician

d-From media (newspaper, television, internet etc.)

e-From textbooks or encyclopedias

f-I have no idea

Q10-What would be your most dreadful concern about having prostate surgery?

a-Urinary incontinence

b-Erectile dysfunction

c-Retrograde ejaculation

d-Death during surgery

e-Failure of prostate surgery

f-Bleeding

g-I have no idea