Original Article

AUA symptom score: A simple tool for assessment of Benign Prostatic Hyperplasia in rural setting

Patel SP[1], Srivastava VK[2]

[1]Associate Professor, [2]Ex Professor, Department of Community Medicine & Public Health, King George's Medical University UP(Erstwhile KGMC),Lucknow, Uttar Pradesh.

Abstract:

Background: Benign Prostatic Hyperplasia (BPH) is one of the most common disease in ageing men and can be associated with Lower Urinary Tract Symptoms (LUTS) that affect quality of life by interfering with normal daily activities. The American Urological Association Symptoms Index (AUA-SI) is recommended as symptom scoring instrument to be used in initial assessment of each patient presenting with symptoms of prostatism.

Objective: To assess the severity of symptoms in Benign Prostatic Hyperplasia subjects by using AUA symptom score in rural population of Lucknow, U.P.

Materials and Methods: It is a rural community based cross-sectional study (2008-2009) conducted in the field practice area of Rural Health Training Centre (RHTC) of Community Medicine department, CSM Medical University UP, Lucknow. The study covered three villages by doing house to house survey. All males of 45 years and above were contacted and information regarding bio-social characteristics taken by using pre-tested questionnaire. Information regarding LUTS was gathered using AUA symptom score questionnaire. Data was analyzed using chi square test.

Results: The prevalence of BPH amongst males aged 45 years and above in the rural area studied was 11.8%. The prevalence of BPH was maximum (62.5%) in the age group of 75 years and above. About 60% BPH patient aged $\geq$ 75 years was found to have AUA symptom score of moderate grade (8to19), whereas only 25% BPH aged 45-54 years were having same grade of AUA symptom score. In the present study, out of 66 patients only 23 (34.8%) had moderate AUA symptom score and 43 had mild (1-7) AUA symptom score. No one had severe symptom score.

Conclusions: Only 34.8% BPH cases were found to have moderate symptoms and awareness of prostate swelling seems to be much poor even after consultation. For proper management of subjects with moderate to severe symptoms, public health awareness campaigns and annual surgical camp must bearrange in rural area.

Key words:AUA symptom score, Grade of AUA symptom score, Awarenessof prostate swelling.

Introduction:

Benign prostatic hyperplasia (BPH), one of the most common diseasein ageing men and can be associated with lower urinary tract symptoms (LUTS) that affect quality of life by interfering with normal daily activities. The community based epidemiological studies estimate that the prevalence of BPH is approximately 40% for men in their 70s[1,2]. BPH is seldom found in men under age 40, there is a very strong age related increase estimated by Moor[3] to reach a prevalence of 75% among men aged 80-90 years. The prevalence of BPH among rural elderly of India was reported 6.7%[4] Approximately half of all men who have a histological diagnosis have moderate to severe LUTS[2]. The update of benign prostatic hyperplasia clinical practice guideline produced by the Agency for Health Care Policy and Research (AHCPR) of the United States Department of Health and Human Services was developed by a panel of experts chosen by the American Urological Association (AUA) Practice Guide lines Committee. The guideline is intended to provide scientifically based information on the treatment out-come so that physician can assist their patient in making appropriate treatment decisions[5]. The American Urological Association (AUA) Symptom Index is recommended as the symptom scoring instrument to be used in the initial assessment of each patient presenting with symptoms of prostatism. The AUA commissioned the development of a

Address for Correspondence:
SP Patel, Associate Professor, and Incharge, RHTC, Sarojini Nagar, Department of community Medicine& Public Health, King George's Medical University UP(Erstwhile KGMC),Lucknow, Uttar Pradesh, India.
Email: patelkgmclko@gmail.com

quantitative symptom severity and frequency score. The resulting instrument is a seven questions questionnaire with a response scheme from 0 to 5 for each question for a total score ranging from 0 to 35 in the order of increasing symptom severity and frequency[6]. When the AUA score system is used, symptoms should be classified as mild (0 to 7), moderate (8 to 19), and severe (20 to 35). The symptom score should be the primary determinant of treatment response or disease progression in the follow-up period. It is also mentioned the AUA score index is of gold standard of symptoms score[6]. Even then most of patients is being diagnosed by Digital rectal examination (DRE), Ultrasound and Cysto-urethroscopy. These techniques are invasive, inconvenient and cumbersome to follow in rural setting due to lack of resources. In this contest, AUA symptom score is much simpler to serve the same purpose at the door of patient especially in rural community.

The present study was conducted to know the biosocial characteristics and to assess the severity of symptoms for which AUA symptom score was calculated by completed AUA symptom score index. The awareness of prostate swelling in the patient was too revealed in the study.

Materials and Methods:

Study design and setting

This rural community based cross-sectional study (2008-2009) was conducted in the field practice area of Rural Health Training Centre (RHTC), Sarojini Nagar of the Department of Community Medicine & Public Health, K G Medical University UP, Lucknow. The study covered 7849 population in the villages namely Rahimabad (2211), Natkur (2857) and Hindukhera (2781) respectively.

Data collection

These villages were concerned with house-to-house survey where all subjects of 45 years and above were taken for study. 983 households of the taken age groups were interviewed out of which only 915 were found cooperative. They got us acquainted with their bio-social factors and Lower Urinary Tract Symptoms (LUTS) which were recorded on pre-tested formats for collection of bio-social characteristics. A separate information regarding LUTS through AUA symptom score [6] was also carried out using questionnaire of the annexure. This cross sectional survey of 915 households with 558 adult males of 45 years and above was completed. Various bio-social characteristics viz. age, religion, caste, primary occupation, habits and addiction, dietary habits, education and BMI of subjects were recorded to know their association with Benign Prostatic Hyperplasia. The subjects with symptoms of BPH like incomplete emptying, frequent urination, stopped and started urination, urgency, weak stream, push/strain to begin urination and nocturia were studied for calculating AUA symptoms score.

Dataanalysis

The data was presented in proportions and percentages and nonparametric tests of significance were used for comparing differences between variables of subjects. Statistical analysis was done by using chi-square test to know the significant associations among various bio-social factors.

Results:

BPH / LUTS by bio-social characteristic

The number of subjects undertaken in the present study was 558 of which the prevalence rate amongst 45 and above men was found to be 11.8%. However, the prevalence rate was maximum (62.5%) among age group of 75 years and above but it was found quite less (3.0%) amongst 45 – 54 years age group. It had been observed that the prevalence rate was found to be gradually increasing with the increasing age of subjects. This difference in the prevalence amongst various age groups was found to be statistically highly significant (P<0.001). The prevalence among Hindu and Muslim religion and also amongst various caste of Hindu were found statistically non-significant. The prevalence in relation to primary occupation was found quite high (26.4%) amongst business/other but was comparatively low (3.0%) amongst service doing subjects. This difference was also statistically highly significant (P<0.001). It was quite interesting to find that out of 558, the 342 subjects were non-vegetarian where 48 (14.0%) of them were BPH cases. Moreover, the prevalence rate was seen much less in case of vegetarian(8.3%). This difference in BPH was foundstatistically significant (P<0.05). Among educational group, the difference seem to bestatistically non significant. Subjects with more BMI (>25.0) were found to be of higher prevalence that is 20.0% as compared to subject of lower BMI (<20.0) that is 14.9%, whereas the prevalence in normal BMI subject was found to be only 2.7%. Hence the difference in prevalence of BPH among these subjects was found statistically significant (p<0.01).

Table 1: Prevalence of BPH/LUTS by Bio-social characteristics of subjects   n=558

Characteristics	No. of subjects surveyed	Subjects with BPH as per LUTS		P-value
		No. with LUTS	Prevalence Percentage	
Age				
45-54	271	08	03.0	
55-64	176	24	13.6	P <0.001
65-74	103	29	28.2	
?75	08	05	62.5	
Religion				
Hindu	513	59	11.5	P >0.05
Muslim	45	07	15.6	
Caste of Hindu (n=513)	231	31	13.4	
SC/ST	174	17	09.8	P >0.05
OBC	108	11	10.2	
General				
Primary occupation	297	28	09.4	
Farming	123	17	13.8	P <0.001
Laborer	66	02	03.0	
Service	72	19	26.4	
Business/ Others				
Habits/ Addiction	390	47	12.1	
Tobacco	60	11	18.3	P >0.05
	108	08	07.4	
Alcohol/Tobacco				
No addiction				
	216	18	08.3	P <0.05
Dietary habits	342	48	14.0	
Vegetarian				
Non- vegetarian				
	229	34	14.8	
Education	157	16	10.2	P >0.05
No schooling	119	10	08.4	
Up to primary	53	06	11.3	
Up to middle				
? high school				
	396	59	14.9	
BMI	147	04	02.7	P <0.01
<20.0	15	03	20.0	
20.1-25.0				
>25.0				
Overall	558	66	11.8	

Table 2: Frequency of lower urinary track symptoms (LUTS)   n=66

Symptoms	Age group(years)				All ages
	45 – 54 N (%)	55 – 64 N (%)	65 – 74 N (%)	? 75 N (%)	N (%)
Feelingnot empty	01(13)	04(17)	07(25)	02(33)	14(21)
Frequent urination (< 2 hr interval)	03(38)	08(33)	10(36)	03(50)	24(36)
Stopped & started	02(25)	06(25)	08(29)	02(33)	18(27)
Urgency	03(38)	08(33)	12(43)	03(50)	26(39)
Weak stream	02(25)	08(33)	11(39)	03(50)	24(36)
Push/strain to begin	01(13)	03(13)	04(14)	01(17)	09(14)
Nocturia	03(38)	09(38)	15(54)	05(83)	32(49)

Table 3: AUA symptom score of BPH / LUTS subjects   n=66

Age (years)	AUA symptom score			
	Mild (1-7) N (%)	Moderate(8-19) N (%)	Severe(20-35) N (%)	All grades N (%)
45-54	06(75.0)	02(25.0)	Nil	08(12.1)
55-64	17(70.8)	07(29.2)	Nil	24(36.4)
65-74	18(62.1)	11(37.9)	Nil	29(43.9)
?75	02(40.0)	03(60.0)	Nil	05(7.6)
All ages	43(65.2)	23(34.8)	Nil	66(100.0)

Clinically, BPH subjects are suffering from various progressive development of LUTS. Table 2 showed that the most common presenting complaints of LUTS among BPH patients ofage group 45 and above were frequent urination (< 2 hours interval), urgency and nocturiawhich were altogether 38% whereas in the advancing age (≥75 years) the symptom of nocturia peaked highest as 83%. The frequency of all symptoms increases with the increasing age group with nocturia as the highest (49%) and push/ strain to begin as the lowest one (14%).

AUA symptoms score

AUA symptom score between 8-19 (moderate grade) was found in 60% of cases among patients aged ≥ 75 years whereas AUA symptom score of same grade was found in 25% of cases among age group of 45-54 years.

Discussions:

Benign prostatic hyperplasia is the result of cellular proliferation of the epithelial and stromal tissue within the prostate gland in men after age of 40 years. Most of BPH patients are unaware to prostate enlargement and hence they remain beyond the timely health care consultation. The present study concluded the prevalence of BPH as 11.8%. The reports by Parray et al showed somewhat higherprevalence (13.1%) in geriatric population of Kashmir.[7] The present study resulted prevalence range as 3.0% in men 45-54 years to 28.2% in men 65-74 years. These findingswere supported by Meigs et al reported that the prevalence of clinical diagnosis of BPH ranged from 8.4% in men 40 to 49 years of age to 33.5% in men aged 60 - 70 years[8]. Guess et al. reported in longitudinal study of ageing, the prevalence ranged from 10% in men 40-50 years to 55% in men 70 - 79 years[9]. Garraway et al reported in their study of BPH natural history, the prevalence range as 15% in men 40-49 years to 40% in men 70-79 years[1]. However, these prevalence were higher than the rate of present study. Wei et alreported in the chapter 2, Benign Prostatic Hyperplasia , the prevalence of BPH amongoutdoor patients of 2001 ranged from 0.8% in the age 40 -45 years to 71% in men older than 85[10].

The present study showed that nocturia was ranging from 38% in those aged 45-54 years to 83% among those aged ≥ 75 years. Similarly frequent urination ranged from 50% among patients age ≥ 75 years to 38% among 45-54 years age group. A weak stream range was observed from 25% among 45-54 years age group to 50% among those aged ≥ 75 years. Chute et alrevealed in a population based survey of urinary symptoms that the frequent urination ranged from 16% in the men of age 40 – 49 years to 55% in men age of ≥ 70 years and frequency of other symptoms like weak stream ranged from 23% in men aged 40 – 49 years to 49% in men aged ≥ 70 years[11]. The ranges of symptoms nocturia& weak steam in a report of population based survey 1993 were in same pattern as in present study. The present study observed that that percentage of patients with AUA symptom score >7(moderate to severe) was observed to range from 25% among 45-54

years age group to 60% among those aged ≥ 75 years. Chute et al mentioned in their population based survey of urinary symptom, the percentage with AUA symptom score > 7 ranged from 26% in men aged 40 – 49 to 46% in men age > 70[11] which is quite similar as the present study.

Wei et almentioned in their study the natural history of lower urinary tract symptoms in black American men the percentage of symptoms score greater than 7 ranged from 31.7% in 40 – 49 years age group to 38.6% in 70 – 79 years[12].

Conclusions:

Benign Prostatic Hyperplasia a non-specific disease of men aged >45 years lowers the quality of life by affecting the physiology of urination. In the present study, the data highlighted highly statistical significant for association amongst various age groups and type of primary occupation of subjects. The association of prevalence amongst different dietary habits and levels of BMI were found statistically significant. There was found no association with religion, castes of Hindu, habits and addiction and education of subjects. The condition seemsto be more prominent in the advancing age with symptoms of nocturia, weak stream, urgency and feeling not empty as the bothering ones. The study interpreted a conclusion from AUA symptom score that a near about 1/3rd BPH patients (34.8%) were found for suitable to manage with health intervention. Hence, the present study concluded to organize public health awareness campaigns regarding enlarged prostate glands and associated symptoms. Annual surgical camp in rural community is an appropriate approach for better handling of moderate to severe BPH cases.

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