Prospective Survey of Lower Urinary Tract Symptom [LUTS] and the Commonest Risk Factor among Urological Patients in Nigeria

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ABSTRACT

Objective: To determine the age-specific prevalence, severity of LUTS and the commonest risk factor among Nigerian patients.

Methods: A prospective, non-randomized study of 360 men was carried out at the Ekiti State University Teaching Hospital, Ado-Ekiti, south- western Nigeria between 1st of January, 2012 and 31st of December, 2014. The International Prostate Symptoms Score (IPSS) questionnaire was used for the assessment of LUTS and quality of life [QoL].

Results: The mean age of the study population was 64±12.8 years and men in the age group 60-69 years had the highest prevalence of 27.8%. Eighty-two and half percent [82.5%] of the men had moderate to severe symptoms (IPSS score > 7). The prevalence of storage symptoms was significantly higher than that of voiding symptoms in all age groups. LUTS was not associated with smoking or body mass index, p>.05. Men with diabetes had 1.640[95%CI=0.895-3.005] and hypertension 1.071 [95%CI=0.773-1.484] higher those without and also poorer QoL. Known alcoholic patients were less likely to develop LUTS and poor QoL than non alcoholics, odd ratio [OR] was 0.774[95%CI=0.573-1.047]. The age of patient was also significantly associated with good QoL with patients aged >65 years having good QoL compared to those aged<65years (p<0.05). The OR for developing poor QoL for patients aged<65years was 1.331[95%CI=1.063-3.543] while for aged>65 years, it was 0.686[95%CI=0.470-1.001].

Conclusion: LUTS was commonest in the 7th decade of life and alcohol consumption was the commonest but protective risk factor in south -western Nigeria. Majority of the patients presented with moderate to severe symptoms.

Keywords: Age, alcohol, LUTS

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INTRODUCTION

Lower Urinary Tract Symptom [LUTS] is a recent term for what used to be known as prostatism. (1) It is a conglomeration of symptoms characterizing the process of evacuating urine from the bladder. It can be divided into storage [irritative] symptoms which comprise frequency, nocturia, urgency and incomplete emptying (1, 2) and voiding [obstructive] symptoms which consist of weak stream, hesitancy, and terminal dribbling. (3)

LUTS usually results from a complex interplay of pathophysiologic features that include bladder dysfunction and Bladder Outlet Obstruction (BOO) or a combination of both (2, 4-6).

BOO is commonly due to Benign Prostatic Obstruction (BPO), Bladder Neck Dysfunction [BND], Poor urethral sphincter relaxation [PRES], urethral stricture, and urethral sphincter dyssynergia. Bladder dysfunction may be due to Idiopathic Detrusor Overactivity [IDO], Increase Bladder Sensation [IBS], impaired detrusor contractility {including Detrusor Underactivity [DU]} and Detrusor Hyperactivity with Impaired Contractility [DHIC]. (4-7)

Apart from age, risk factors commonly associated with development of LUTS are obesity, smoking, alcohol consumption and elevated blood pressure. (8-10). A study by Jiang et al in Taiwan showed a 40% increase in the risk of moderate to severe LUTS among men with history of diabetes or hypertension. (7) Besides, a clear increase in the prevalence of LUTS has also been established in middle aged to elderly men. (11-16)

Furthermore, racial differences in the severity of LUTS among different age groups with no clear cut reason have been reported. (17)

However, most of these studies were done in the developed world. These findings may be very difficult to apply to the developing countries.

Therefore, this study was to determine the age-specific prevalence, commonest risk factor[s] and the severity of LUTS, among Nigerian patients. This will allow improved management of the disease entity in this environment and possible effective life style changes recommended.

To the best of our knowledge, literature on the prevalence and risk factors of LUTS, especially among urological patients are scanty in this country.

METHODS

Settings

Site

This is a prospective, non-randomized study conducted at the urology clinic of the Ekiti State University Teaching Hospital, Ado-Ekiti, South-Western Nigeria.

Location

Ekiti State is situated entirely within the tropics. It is located between longitudes 4^0 5^1 and 5^0 45^1 East of the Greenwish meridian and latitudes 7^0 15^1 and 8^0 5^1 north of the Equator. It lies south of Kwara and Kogi State, East of Osun State and bounded by Ondo State in the East and in the south. Ekiti State has 16 Local Government Councils. By 1991 Census, the population of Ekiti State was 1,647,822 while the estimated population upon its creation on October 1st 1996 was put at 1,750,000 with the capital located at Ado-Ekiti. (18)

Data collection

The IPSS [International Prostate Symptoms Score] forms were filled by all new patients [those who were not literate were assisted by trained staff], who presented to us at the Urology clinic from 1st of January, 2012 to 31st of December, 2014.

IPSS is based on the answers to seven questions concerning urinary symptoms and one question concerning quality of life. Each question concerning urinary symptoms allows the patient to choose one out of six answers indicating increasing severity of the particular symptom. The answers are assigned points from 0 to 5. The total score ranges from 0 to 35 (asymptomatic to very symptomatic).

The questions refer to the following urinary symptoms: [1] Incomplete emptying [2] Frequency [3] Intermittency [4] Urgency [5] Weak Stream [6] Straining [7] Nocturia. Question 8 refers to the patient's perceived quality of life [QoL].

The first seven questions of the IPSS are identical to the questions appearing on the American Urological Association [AUA] Symptom Index, which currently categorizes symptoms as follows: Mild [score ≤ 7], Moderate [score range 8-19], Severe [score range 20-35]. (19)

Sample size determination

The sample size was calculated using the Abramson and Gahlinger's formula when population is greater than 10, 000. (20). Using this formula, the minimum sample size was 308. However, to improve the accuracy of the study and in order to make the finding more representative, the sample size was increased to 360.

Ethical issues

The major ethical concern was that of confidentiality. All records and relevant materials were stored in locked cabinets and accessed only by authorized personnel.

Ethical clearance was obtained from the Ethics and Research Committee of the University of Ado-Ekiti Teaching Hospital. Written informed consent was also obtained from the participants.

Statistical analysis

For the statistical analysis of the LUTS determinants, IPSS was categorized into mild, moderate and severe symptoms. However, for the assessment of the impact of LUTS on QoL, IPSS was categorized into two groups: [i] mild and [ii] moderate to severe. The QoL question was also classified into two groups: good QoL [BQ≤3] versus poor QoL [BQ>3].

The statistical significance [two-tailed P value< 0.05] was assessed by a chi-square test. Association between demographic [background] characteristics and LUTS; between LUTS and QoL was assessed by multivariate logistic regression model, using prevalence odds ratio [OR] with 95 percent confidence intervals [CI]. Age, diabetes, hypertension, and obesity [BMI>30Kg/m^2] were included in the multivariate models as covariates.

In Fig.2, majority [75.3%] of the cases presented as Benign Prostatic Hypertrophy [BPH], Cancer of the Prostate [CAP] was 17.5% and Urethral stricture [Urethral S] was 3.1%.

The OR of known hypertensive patients developing poor QoL was 1.071 [95%CI=0.773-1.484], while for known diabetic patients, it was 1.640[95%CI=0.895-3.005] and 0.774[95%CI=0.573-1.047] for known alcoholics.

The age of patient was also significantly associated with good QoL with patients aged >65 years having good QoL compared with those aged<65years, [p<0.05]. The OR for

developing poor QoL for patients aged<65years was 1.331[95%CI=1.063-3.543] while for aged>65 years, it was 0.686[95%CI=0.470-1.001]. BMI was not significantly associated with QoL, [p>0.05].

DISCUSSION

We sought to determine the prevalence, severity, and symptom bother of LUTS in all men attending the urology clinic at Ekiti State University Teaching Hospital, Ado-Ekiti, Nigeria. This study revealed that LUTS was most prevalent in the 7th decade of life, followed closely by the 6th. The age range was 24-100 years with a mean age of 64±12.8years. This is contrary to the findings of Prasad *et al* who reported that LUTS was more prevalent in young adults in Qatar. (17). The population of patients who were younger than 50 years of age in this study was 14.4% as opposed to 12.4% reported by Bock-Oruma *et al*.(16).This difference may be due to the fact that Bock-Oruma study was limited to LUTS secondary to BPH only. However, findings from both studies point to the fact that, LUTS is generally rare in younger age group. (12, 16)

Applying the IPSS, the prevalence of 75.3% of patients with LUTS due to BPH in this study was similar to the findings in the Niger-delta area of Nigeria but higher than 25.3% reported in the eastern part of Nigeria. (16, 21) This may be due to the fact that this study is better powered and has wider age range.

Furthermore, moderate to severe symptoms were the most prevalent IPSS severity score in this study- a finding corroborating the reports of Silva et al and Rhodes *et al* that most patients with mild symptoms are not sufficiently bothered to accept the risks of even noninvasive therapy. For some of these patients, decision to pursue treatment might be driven by moderate or severe genitourinary symptoms, whereas in others, fear of prostate cancer, surgery, or impotence

is the major factor that drives the decision to seek medical attention. Hence, worse symptoms accompany their late presentation.(22,23) The findings in this study may be due to the fact that, most of our patients usually delay seeking medical attention probably due to lack of education or/and non- availability of medical facilities in most of our environments.

In addition, the prevalence of storage symptoms was higher than that of voiding symptoms in this study but both sub-groups were significantly affected by the age of the participants, [$p<0.05$].This finding might be due to the fact that, majority of the causes of LUTS in this study were due to obstructive and/or age-induced detrusor instability characteristic of storage symptoms, contrary to obstruction at the level of the prostate typical of the voiding symptoms. (24, 25)The lack of videourodynamic studies in our Centre made confirmatory evidence impossible.

Apart from age, obesity, smoking, alcohol consumption and elevated blood pressure are some of the common risk factors associated with development of LUTS. (26, 27, 28) In this study, LUTS was not associated with smoking or body mass index. The commonest risk factor was alcohol consumption. Men with diabetes or hypertension were slightly at a higher risk of LUTS, compared with those without, but this association was not statistically significant. This study revealed that, alcohol consumption has an inversely relationship with the risk of moderate to severe LUTS, $p<0.05$.This protective influence of alcohol is in agreement with the findings of Suh et al that reported a similar protective effect of light-moderate alcohol consumption on LUTS. (29, 30) There is however the need for further research to determine the level of alcohol consumption and its safety before a dependable recommendation could be made in this regard.

In addition, the odd ratio of a known hypertensive patient, developing a poor quality of life has been found to be 1.071 whereas that of a known diabetic patient was 1.640. These findings have indicated that, the two risk factors, although not statistically significant, worsen the QoL of patients with LUTS. This is similar to the findings by some researchers that men with diabetes or/and hypertension, were slightly at a higher risk of LUTS, compared with those free from the risks. (17)

Finally, there was a statistically significant association between age and QoL. Men aged above 65years tended to have good QoL than those less than younger, ($p<0.05$). More studies are needed to determine the reason behind this finding.

Limitation of this study is that, being a hospital based study it cannot represent fully the prevalence in this population. A community based study is essential as a future research.

CONCLUSION

The highest prevalence of LUTS in this study was at age 60-69years, moderate to severe symptoms were the most prevalent symptoms and storage symptoms were more prevalent.

Alcohol consumption was protectively associated with the severity of symptoms but Physicians should watch out for these patients for proper management and pay particular attention them so as not to underrate the severity of their illness.

RECOMMENDATION

1. That community based health education on LUTS should be conducted periodically to sensitize people on the need to seek early medical attention.

2. Patients should be screened and treated for co-morbidities and life style changes that can prevent development of LUTS be taught and encouraged.

3. A further research is required to establish the protective effect and safety of alcohol consumption on LUTS.

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Table 1: Frequency Distribution of Ipss Sverity Score and Risk Factors

Age Group in Years	Frequency	Percentages%
20-29	7	1.9
30-39	4	1.1
40-49	41	11.4
50-59	85	23.6
60-69	100	27.8
70-79	74	20.6
80-89	37	10.3
90 & above	12	3.3
IPSS:		
MILD SYMPTOM	63	17.5
MODERATE TO SEVERE SYMPTOM	297	82.5
HYPERTENSION:		
YES	151	41.9
NO	209	58.1
DIABETES MELLITUS:		
YES	49	13.6
NO	311	86.4
ALCOHOL:		
YES	208	57.8
NO	152	42.2

IPSS	**MEAN**	**SD**	**T**	**P-VALUE**	**95%CI**
STORAGE SYMPTOM	9.47	6.6	39.517	0.000	8.69-9.60
VOIDING SYMPTOM	9.15	4.4	27.196	0.000	8.74-10.16

Dependent variable: age group. *SD= standard variation; CI= confidential interval

Table 2: Binary Logistic Regression analysis of IPSS and the risk factors

	B	SE	Wald	df	sig.	Exp.[B]	95%CI for Exp.[B]	
							Low	Upper
Constant	2.823	0.333	71.805	1	0.000	16.834		
Known alcohol	-0.784	0.322	5.91	1	0.015	0.457	0.243	0.859
Age	-0.905	0.341	7.039	1	0.008	0.405	0.207	0.790

SE=Standard error, B=beta, df= degree of freedom, CI=confidential interval.

Table 3: The Pearson correlation between age group and IPSS.

		Age group	Voiding symptoms	Storage symptoms
Age group	Pearson correlation	1	0.240	0.337
	Sig(2-tailed)	-	0.000	0.000
	N	360	348	352
Voiding symptoms	Pearson correlation	0.240	1	0.644
	Sig(2-tailed)	0.000	-	0.000
	N		348	348
Storage symptoms	Pearson correlation	0.337	0.644	1
	Sig(2-tailed)	0.000	0.000	-
	N	352	348	352

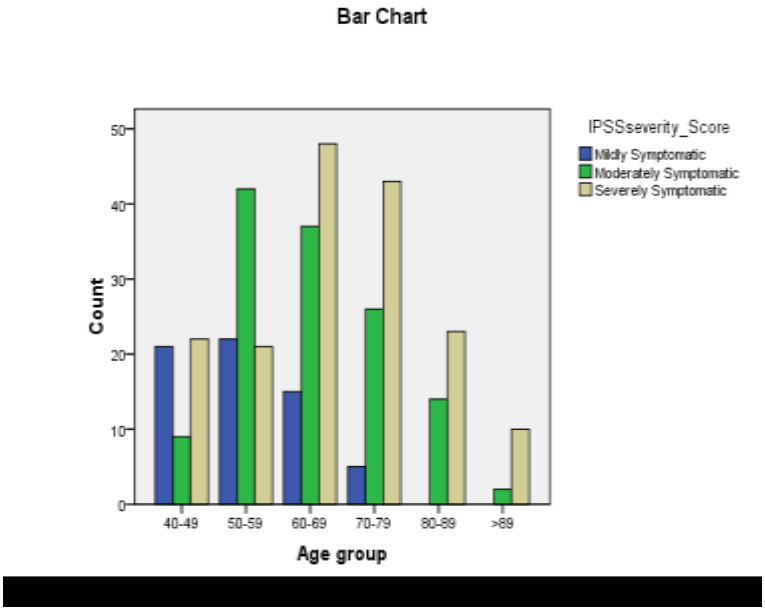

Fig.1: shows the IPSS severity score against various age groups in the study population. Moderately symptomatic patients were highest in the 6th decade of life, followed very closely by the 7th decade of life. Severely symptomatic patients were seen more in the 7th decade of life.

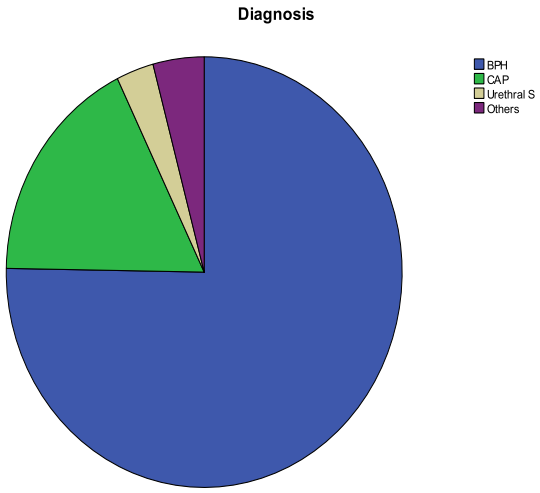

Fig 2: shows the pie chart distribution of various causes of LUTS in this study.