

# Ethnic distribution of patients presenting with lower urinary tract symptoms (LUTS)

AUB Pethiyagoda\*, K Pethiyagoda\*\*

\*Department of Surgery, Faculty of Medicine, University of Peradeniya, Sri Lanka

\*\*Department of Community Medicine, Faculty of Medicine, University of Peradeniya, Sri Lanka

**Abstract**-Lower urinary tract symptoms (LUTS) are very common presenting complaints in urology practice and is a main cause affecting the quality of life. LUTS are characterized by storage symptoms and voiding symptoms, including urinary frequency, urgency, nocturia, intermittency, hesitancy, incomplete voiding, poor stream and terminal dribbling. In males LUTS typically occurs due to bladder outflow obstruction due to benign prostatic hyperplasia. In women LUTS usually occur due to overactive bladder due to detrusor over activity. The objective of the current study was to evaluate the ethnic distribution of patients presenting with LUTS.

This study was conducted as a retrospective observational study from June 2009 to June 2016. Patients presenting to the urology clinic, Teaching hospital, Peradeniya with LUTS were included in the study. Their socio demographic characteristics were recorded and IPSSs were obtained by Doctors. Subjects less than 18 years were excluded. Ethnic distribution of the patients presenting with LUTS was compared with Ethnic distribution of central province.

The study population included 1288 patients between 20 to 94 years. Mean age was  $62.81 \pm 12.18$  years. There were 79.81 % (n=1028) male patients. Ethnic composition of the study population consisted of 89.8% (n= 1157) Sinhalese patients, 6.7% (n=86) Muslim patients and 3.5 % ( n= 45) Tamil patients. According to the census of population and housing Sri Lanka, 2012, ethnic composition of central province was Sinhalese 66%, Muslims 9.9% and Tamils 23.8%. Mean IPSS values in Sinhalese, Tamil and Muslim populations were  $17.12 \pm 8.14$ ,  $18.11 \pm 7.79$  and  $18.21 \pm 9.03$  respectively. When considering the severity of LUTS there was no statistically significant difference between different ethnic groups ( $p=0.262$ ). The most common lower urinary tract symptom was nocturia (87%). Least common symptom was straining (50.5%). In Sinhalese population commonest symptom was nocturia 86.9%, least commonone was straining 49.4%. In Muslim population most common symptom was nocturia 88.4% while least common one was straining 59.3%. In Tamil population both poor stream and nocturia were seen in 86.7%. Least common symptom was straining 64.4%.

According to current study ethnicity does not have a major impact on the severity of LUTS.

Index terms-LUTS,IPSS,Ethnic composition

## I. INTRODUCTION

Lower urinary tract symptoms (LUTS) are very common presenting complaints in today's urology practice, and is a main cause affecting the quality of life especially in adult male population. LUTS are characterized by storage symptoms and voiding symptoms which include urinary frequency, urgency, nocturia, intermittency, hesitancy incomplete voiding, poor stream and terminal dribbling. In males LUTS typically occurs due to bladder outflow obstruction due to benign prostatic hyperplasia (BOO). LUTS can also occur without BOO. In women LUTS usually occur due to overactive bladder due to detrusor over activity<sup>1</sup>.

The prevalence of lower urinary tract symptoms (LUTS) rises with age and may be caused by factors such as benign prostatic hyperplasia (BPH), obesity, and diabetes<sup>2-6</sup>. However, our knowledge of the epidemiology of LUTS is surprisingly limited. While recent studies have shed light on other putative factors that may increase or decrease the risk of LUTS<sup>7</sup>, aspects of the basic descriptive epidemiology are missing or incomplete. One facet missing from our knowledge of basic LUTS epidemiology is whether race/ethnic disparities exist.

The objective of the current study was to evaluate the ethnic distribution of patients presenting with LUTS.

## II.MATERIALS AND METHODS

This study was conducted as a retrospective observational study from June 2009 to June 2016. Patients presenting to the urology clinic, Teaching hospital Peradeniya with a history of LUTS were included in the study. Their socio demographic characteristics including ethnicity were recorded in the history and IPSSs of the patients were obtained by doctors. Subjects less than 18 years of age were excluded. Ethnic distribution of the patients presenting with LUTS was compared with Ethnic distribution of central province. Severity of LUTS was determined by total IPSS. According to total international prostate symptom score LUTS can be categorized into mild (symptom score less than or equal to 7) moderate (symptom score range 8-19) and severe (symptom score range 20-35). Analysis was carried out using SPSS 20<sup>th</sup> version.

## III.RESULTS

The study population included 1288 patients between 20 to 94 years. Mean age was  $62.81 \pm 12.18$  years. There were 1028 male patients and 80 female patients. Ethnic composition of the study population consisted of, 89.8% (n=1157) Sinhalese patients, 6.7% (n=86) Muslim patients and 3.5% (n=45) Tamil patients. According to the census of population and housing Sri Lanka in 2012, ethnic composition of central province was Sinhalese 66%, Muslims 9.9% Tamil 23.8% and others 0.3%.

Mean IPSS values in Sinhalese, Tamil and Muslim populations were  $17.12 \pm 8.14$ ,  $18.11 \pm 7.79$  and  $18.21 \pm 9.03$  respectively. Regarding the severity of IPSS there was no statistically significant difference between different ethnic groups. (P=0.262)

In our study population most common lower urinary tract symptom was nocturia which was present in 87% of study population. Least common symptom was straining which was seen in 50.5%. Other symptoms were poor stream 79.9%, increased frequency 75.6%, urgency 71.5%, and incomplete voiding 71.3% and intermittency 70.6%.

In Sinhalese population most common symptom was nocturia 86.9%, least common one was straining 49.4%. Others included poor stream 80.1%, increased frequency 75%, intermittency 71.7%, incomplete voiding 71.2% and urgency 71%. In Sinhalese population severe LUTS was seen in 39.6%, moderate in 47% and mild LUTS in 13.4%.

In Muslim population most common symptom was nocturia 88.4% while least common one was straining 59.3%. Others included increased frequency 80.2%, urgency 77.9%, poor stream 73.3%, incomplete voiding 68.6% and intermittency 67.4%. In Muslim population severe LUTS was seen in 47.7%, moderate in 34.9% and mild LUTS in 17.4%.

In Tamil population both poor stream and nocturia were seen in 86.7%. Least common symptom was straining 64.4%. Others included frequency 82.2%, incomplete voiding 77.8% and intermittency and urgency 73.3%. In Tamil population severe and moderate LUTS were seen in 44.4% each and mild LUTS in 11.1%.

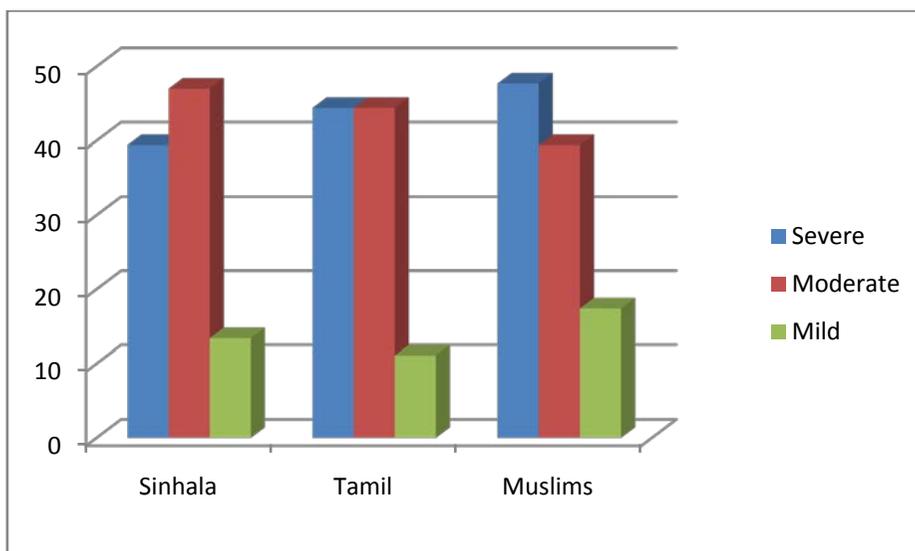


Figure 01- Severity of LUTS among ethnic groups

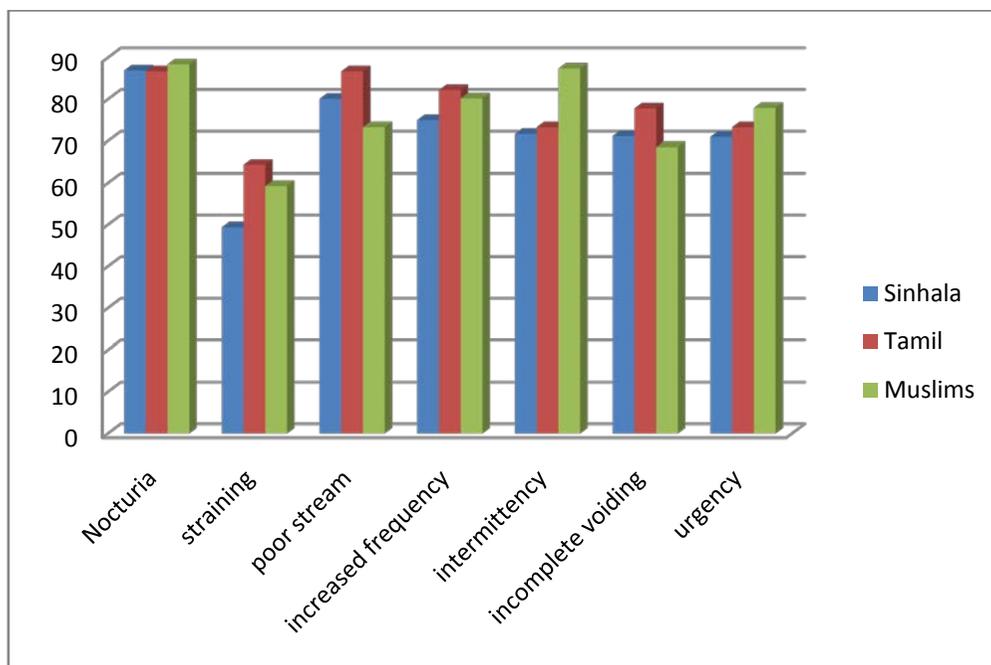


Figure 02- percentage of IPSS values in each ethnic groups

#### IV. DISCUSSION

According to our study results mean total IPSS was higher in Muslim population compared to other two. But there was no statistically significant difference in the severity of LUTS in different ethnic groups. Most common LUTS in the whole population was noctria which in the same time was the most common symptom in all three ethnic groups. In a study conducted, by C.Hernández et al. using 502 Spanish patients with lower urinary tract symptoms found out that, the overall prevalence of nocturia in their study population was 83.1%.<sup>8</sup> Comparatively our study group had a slightly higher percentage of nocturia.

Compared to ethnic distribution of central province in Sri Lanka in 2012, a higher percentage of Sinhalese patients seek treatment for LUTS even though severe LUTS was commonly seen other two ethnic groups. This can be due to the fact that LUTS may be common in Sinhalese population compared to other two or they seek medical attention earlier than other two ethnic groups. Results highlighted that compared to the ethnic distribution of the central province the prevalence of Tamil patients seeking medical attention are significantly low. This can be due to lack of awareness regarding LUTS in that population and poor accessibility to health care system. According to Census of Population and Housing - 2012, percentage of literate population in the urban sector is 97.7 %, in the rural sector 95.7% and estate sector 86.1 %. In the estate sector most of the people are Tamils. Therefore the poor literacy level among them can be a contributory factor for lack of awareness about LUTS. Since LUTS has a significant impact on the quality of life of an individual it is important to take measure to educate those regarding LUTS and the treatment options.

One of the other study which is conducted by Stephen K. et.al found that LUTS increased with age within each race/ethnic group, as expected. A Boston-area study found no significant differences by race/ethnicity in the prevalence of LUTS (defined as AUASI  $\geq 8$ ) in a sample that included men and women. Exposures or factors that occur over the life span that increase inflammation in the prostate or alter may explain the disparities.<sup>9</sup>

In a study conducted by Lim et al, using 1021 men, found out that the age, ethnicity, prostate volume and history of hypertension and hypercholesterolemia were independent factors associated with severity of LUTS.<sup>10</sup>

Even though international data suggest that there is a contribution of ethnicity towards LUTS due to many factors including genetic factors, life style factors and various dietary practices and religious practices among various ethnic groups, our study did not show any statistically significant association between ethnicity and the severity of LUTS.<sup>10</sup>

#### V. CONCLUSION

According to the current study ethnicity does not have a major impact on severity or the individual symptoms of LUTS, though a comparatively higher percentage of Sinhalese patients seek medical attention for LUTS.

#### REFERENCES

1. Andersson, K. and Chapple, C. (2014). Current pharmacotherapy of lower urinary tract symptoms. *Surgery (Oxford)*, 32(6), pp.292-296.
2. Kristal AR, Arnold KB, Schenk JM, et al. Race/ethnicity, obesity, health related behaviors and the risk of symptomatic benign prostatic hyperplasia: results from the prostate cancer prevention trial. *J Urol*. 2007;177:1395.
3. Giovannucci E, Rimm EB, Chute CG, et al. Obesity and benign prostatic hyperplasia. *Am J Epidemiol*. 1994;140:989.
4. Meigs JB, Mohr B, Barry MJ, et al. Risk factors for clinical benign prostatic hyperplasia in a community-based population of healthy aging men. *J ClinEpidemiol*. 2001;54:935.
5. Sarma AV, Kellogg PJ. Diabetes and benign prostatic hyperplasia: emerging clinical connections. *CurrUrol Rep*. 2009;10:267.
6. Rohrmann S, Smit E, Giovannucci E, et al. Associations of obesity with lower urinary tract symptoms and noncancer prostate surgery in the Third National Health and Nutrition Examination Survey. *Am J Epidemiol*. 2004;159:390.
7. Parsons JK. Modifiable risk factors for benign prostatic hyperplasia and lower urinary tract symptoms: new approaches to old problems. *J Urol*. 2007;178:395.
8. Hernández, C., Estivill, E., Prieto, M. and Badía, X. (2008). Nocturia in Spanish patients with lower urinary tract symptoms suggestive of benign prostatic hyperplasia (LUTS/BPH). *Current Medical Research and Opinion*, 24(4), pp.1033-1038.
9. Stephen K. Van Den Eeden, PhD,<sup>1,5</sup>Jun Shan, PhD,<sup>1</sup>Steven J. Jacobsen, MD, PhD,<sup>2</sup>David Aaronsen,<sup>3</sup>Reina Haque, PhD,<sup>2</sup>Virginia P. Quinn, PhD,<sup>2</sup>Charles P. Quesenberry, Jr, PhD,<sup>1</sup> and Urologic Diseases in America Project<sup>4</sup>. Evaluating race/ethnic disparities in lower urinary tract symptoms (LUTS) in men *J Urol*. 2012 Jan; 187(1): 185–189.
10. Lim, J., Bhoo-Pathy, N., Sothilingam, S., Malek, R., Sundram, M., Tan, G., Bahadzor, B., Ong, T., Ng, K. and Abdul Razack, A. (2015). Cardiovascular Risk Factors and Ethnicity Are Independent Factors Associated with Lower Urinary Tract Symptoms. *PLOS ONE*, 10(6), p.e0130820.

## AUTHORS

**First Author** – AUB Pethiyagoda, Consultant genito-urinary surgeon/ Senior lecturer, Department of Surgery, Faculty of Medicine, University of Peradeniya, Sri Lanka. Email: pethiya@yahoo.com. Telephone: 0094773079078

**Second Author** – K Pethiyagoda, MSc in community medicine & PhD in occupational health, Senior lecturer in community medicine, Department of Community Medicine, Faculty of medicine, University of Peradeniya, Sri Lanka. Email: [Kalyaniq33@gmail.com](mailto:Kalyaniq33@gmail.com)