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CORRELATION BETWEEN INTERNATIONAL PROSTATE SYMPTOM SCORE AND UROFLOWMETRY PARAMETERS IN MEN WITH LOWER URINARY TRACT SYMPTOMS

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ABSTRACT

Introduction: Our objective was to assess the clinical importance of post void volume and International Prostate Symptom Score (IPSS) questionnaire in men with lower urinary tracts symptoms (LUTS) in men. **Materials and Methods:** The present study was designed to assess the correlation between IPSS and uroflowmetry parameters. This study was conducted among 215 men [mean ± standard deviation: 61.59 ± 13.903 (17- 94 years)] at clinical research laboratory complex, Faculty of Medicine, University of Peradeniya. Interview based questionnaire with IPSS was used to assess the severity of their symptoms in their native language. **Results**: There was a statistically significant positive correlation between international prostate symptom score and bladder residual volume as a percentage of total bladder capacity (Pearson correlation: $r = 0.384$; $p < 0.05$). The mean total IPSS was 16.88 and mean post void volume was 57.98 ml. Over the past month, 25.1% of the study sample had the feeling of not completely emptying their bladder more than half of the time after finishing urination and their mean residual volume percentage was 30.07%. **Conclusions**: Based on our results, there is a significant correlation between the value of total IPSS and the residual volume. It is needed to do further investigations with a large sample over broader geographical area.

KEYWORDS: Lower urinary tract symptoms, International Prostate Symptom Score (IPSS), Uroflowmetry, Post void volume, Sri Lanka.

INTRODUCTION

Symptoms addressed by patients experiencing disease of the lower urinary tract are collectively known as lower urinary tract symptoms (LUTS). The total score reflects the overall severity of the patient's condition (1-7, mild; 8-19, moderate; 20-35, severe) that are related to storage, voiding, and post micturation symptoms.[1] These can be assessed by history taking or objectively with the help of questionnaires such as the International Prostate Symptom Score (IPSS). The IPSS was known as the American Urological Association symptom index which consisted of seven questions encompassing storage, voiding, and post micturation symptoms as well as a quality-of-life question.[2]

Post void residual urine is usually recommended for patients with LUTS. It can be measured by trans-abdominal ultrasound, which is a simple, accurate, and noninvasive method. Sometimes, a sensation of incomplete emptying does not always correlate with post void volume.[3] Urologists occasionally encounter men with LUTS complaining of a feeling of incomplete emptying despite no or little PVR. Our objective was to assess the clinical importance of PVR measurement and IPSS questionnaire in men with LUTS.

MATERIALS AND METHODS

Methodology

The present study was designed to assess the correlation between IPSS and uroflowmetry parameters. This study was conducted among 215 men [mean ± standard deviation: 61.59 ± 13.903 (17- 94 years)] at clinical research laboratory complex, Faculty of Medicine, University of Peradeniya. Interview based questionnaire with IPSS was used to assess the severity of their symptoms in their native language.

Statistical analysis

Pearson correlation was done in SPSS version 20. Calculated frequencies were used for further analysis. Statistical significance at $p< 0.05$ was accepted for all analysis. Data was analysed using Statistical Package for the Social Sciences (SPSS) version 20.

RESULTS AND DISCUSSION

There was a statistically significant positive correlation between international prostate symptom score and bladder residual volume as a percentage of total bladder capacity (Pearson correlation: r = 0.384; p < 0.05). The mean total IPSS was 16.88 and mean post void volume was 57.98 ml. Over the past month, 25.1% of the study sample had the feeling of not completely emptying their bladder more than half of the time after finishing urination and their mean residual volume percentage was 30.07%. Patients with incomplete emptying sensation had higher mean residual percentage than the others. Table 01 shows a significant correlation between age and total IPSS (r = 0.141; p < 0.05).

Table 1: Correlation between IPSS total and bladder residual volume percentage.

		total	percentage
total	Pearson Correlation	1	0.384
	Sig. (2-tailed)		0.001
	N	215	214
percentage	Pearson Correlation	0.384	1
	Sig. (2-tailed)	0.001	
	N	214	214

According to a study done in Nagpur, 2016; out of 102 patients number of non-significant post void residual volume was found in 58 patients (56.86%). Maximum number of patients were managed conservatively (58.82%). Benign Prostatic Hyperplasia (BPH) is a common cause of Lower Urinary Tract Symptoms (LUTS) in men over 50 years of age.[4]

Table 2: Correlation between age and IPSS total.

		age	total
age	Pearson Correlation	1	0.141
	Sig. (2-tailed)		0.039
	N	214	214
total	Pearson Correlation	0.141*	1
	Sig. (2-tailed)	0.039	
	N	214	215

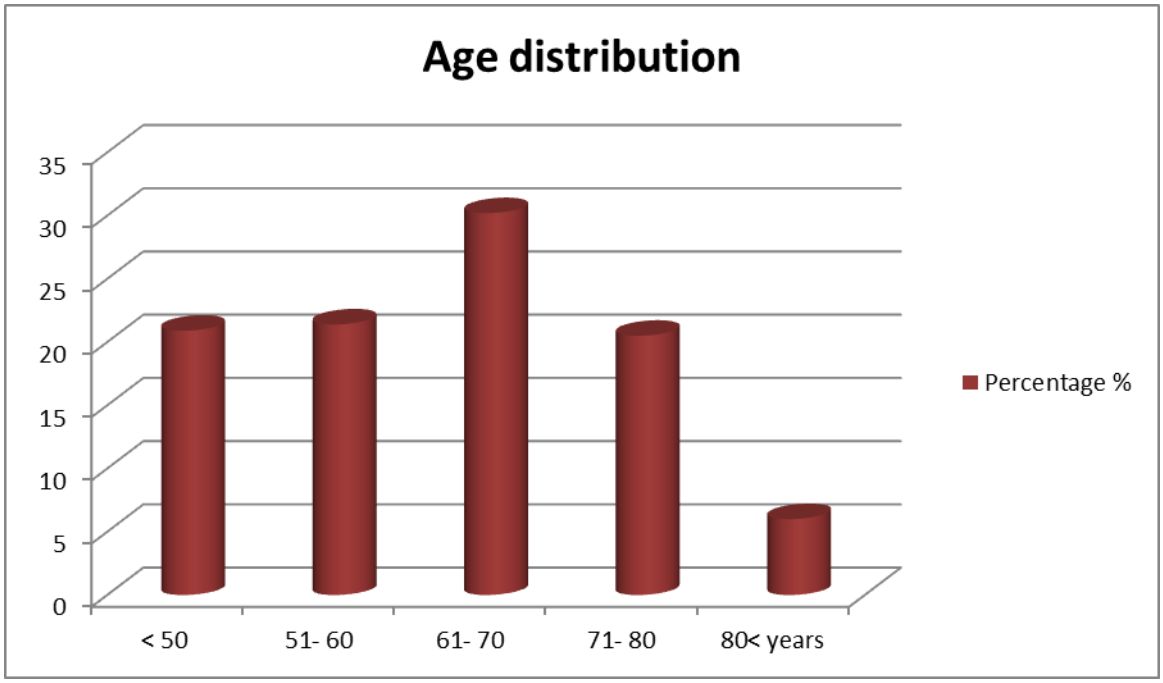

Figure 1: Age distribution of study sample.

Out of total 215 cases, maximum numbers of patients with LUTS were from age group of 61-70 years. In previous studies, maximum patients were from age group of 66-70 years (24%)[4] and Júnior AM et al had reported a mean age of 59.5 years ± 10.8,[5] while Agrawal et al found mean age to be 67.5 years.[6,7]

Table 3: Mean residual volume percentages in IPSS severity groups.

IPSS severity group	N	Mean residual volume %	Std. Deviation
mild	31	10.16	18.492
moderate	103	11.71	15.986
severe	81	25.08	23.944

Most number of patients had an IPSS score in the moderate range (8-19) comprising 47.90% and in the severe range (20- 35) 37.67%.

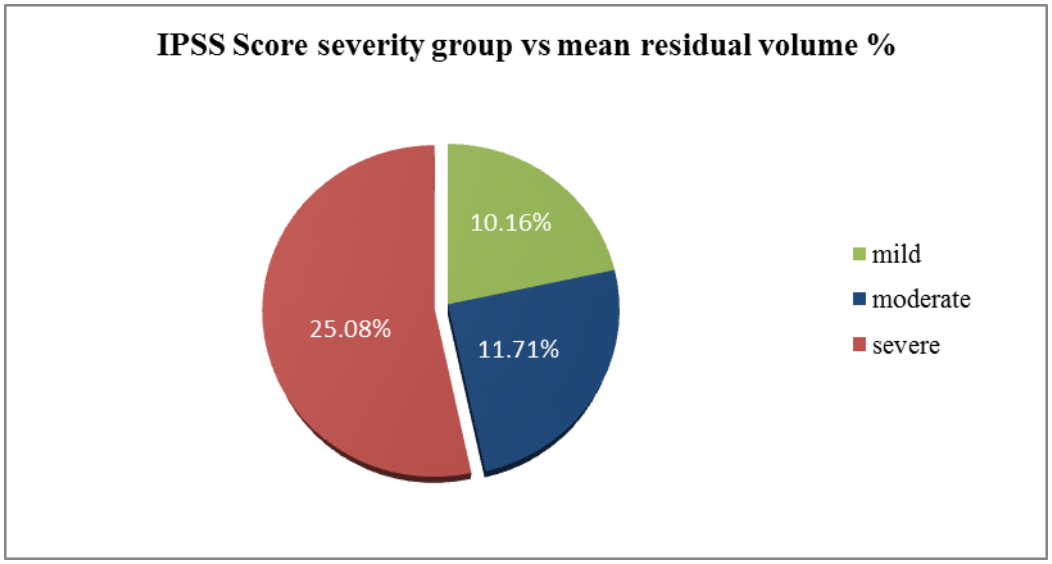

Figure 2: IPSS score severity group versus mean residual volume %.

Out of 215 patients; 29 patients (13.48%) had a post void residual volume above 40%. There was one case who had significant post void volume among patients with mild IPSS, 6 patients in moderate IPSS and 23 patients in severe IPSS group. There is a trend to increase post void volume with IPSS.

Table 4: Percentages of IPSS symptoms.

Symptoms	Not at all (%)	Less than one time in five (%)	Less than half the time (%)	About half the time (%)	More than half the time (%)	Almost always (%)
Incomplete emptying	27.4	14.9	13.5	19.1	14.4	10.7
Increased frequency	13	20	15.3	28.4	18.6	4.7
Intermittency	22.3	16.3	7	22.8	14	17.7
Urgency	7.4	16.3	11.6	25.6	16.3	22.8
Weak stream	8.8	15.8	2.4	21.9	18.6	27.4
Straining	44.2	10.2	8.8	18.6	9.3	8.8
Nocturia	12.1	21.9	24.7	20	13	8.4

The demand of medical care for LUTS will presumably increase because of increasing population and its relative aging. Therefore higher level of efficacy will be needed in the clinical practice.[8]

CONCLUSIONS

Based on our results, there is a significant correlation between the value of total IPSS and the residual volume. It is needed to do further investigations with a large sample over broader geographical area.

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