PREVALENCE OVERACTIVE BLADDER AT TERTIARY HOSPITAL : A RETROSPECTIVE SINGLE CENTER STUDY

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ABSTRACT

Objective: *Overactive bladder (OAB) is a chronic medical condition that has a tremendous impact on the quality of life for both men and women. Urgency is a primary symptom in diagnosing OAB and is closely related to the urge to urinate frequently during the day.* ***Material & Methods :*** *A retrospective study was conducted from January 2018 until December 2020 by using medical records database in our institution. There were 562 patients. Inclusion criteria used in this study are patients with OAB symptoms with any etiology who have undergone conservative, moderate, or future or postoperative measures in the study period. The patient who cannot be cooperative in filling out the International Prostate Symptom Score (IPSS) questionnaire or the patient who refuses were excluded from this study. Statistical analysis was performed using Pearson correlation and linear regression.* ***Results:****From the results, linear regression, obtained significance ($p < 0.05$) on the variables of frequency, urgency and nocturia. A linear regression value of $y = -0.005 + 0.987X$ was obtained which illustrates that the higher the frequency, urgency and nocturia variables, the higher the possibility of Lower urinary tract symptoms (LUTS) that can be correlated with OAB.* ***Conclusion:*** *Frequency, nocturia, and urgency are factors that influence the significance of the IPSS variable on the total IPSS score. Questionnaire items on overactive bladder symptoms score (OABSS) have a significant correlation with IPSS scores.*

Keywords: *Overactive bladder, IPSS, OABSS, LUTS.*

ABSTRAK

Tujuan: *Kandung kemih overaktif (OAB) adalah kondisi medis kronis yang memiliki dampak luar biasa pada kualitas hidup pria dan wanita. Urgensi merupakan gejala utama dalam mendiagnosis OAB dan berhubungan erat dengan keinginan untuk sering buang air kecil di siang hari.* ***Bahan & Cara:*** *Sebuah studi retrospektif dilakukan dari Januari 2018 hingga Desember 2020 dengan menggunakan database rekam medis di institusi kami. Ada 562 pasien. Kriteria inklusi yang digunakan dalam penelitian ini adalah pasien dengan gejala OAB dengan etiologi apapun yang telah menjalani tindakan konservatif, sedang, atau masa depan atau pasca operasi dalam masa penelitian. Pasien yang tidak dapat kooperatif dalam mengisi kuesioner International Prostate Symptom Score (IPSS) atau pasien yang menolak dikeluarkan dari penelitian ini. Analisis statistik dilakukan dengan menggunakan korelasi Pearson dan regresi linier.* ***Hasil:*** *Dari hasil regresi linier diperoleh signifikansi ($p<0.05$) pada variabel frekuensi, urgensi dan nokturia. Didapatkan nilai regresi linier $y = -0.005 + 0.987X$ yang menggambarkan bahwa semakin tinggi variabel frekuensi, urgensi dan nokturia maka semakin tinggi kemungkinan gejala saluran kemih bagian bawah (LUTS) yang dapat dikorelasikan dengan OAB.* ***Simpulan:*** *Frekuensi, nokturia, dan urgensi merupakan faktor yang mempengaruhi signifikansi variabel IPSS terhadap total skor IPSS. Item angket skor gejala kandung kemih overaktif (OABSS) memiliki korelasi yang signifikan dengan skor IPSS.*

Kata kunci: *Kandung kemih overaktif, IPSS, OABSS, LUTS.*

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INTRODUCTION

Overactive bladder (OAB) affects men and women's quality of life. OAB impairs work, travel, exercise, sleep, and sexual function. About 16.5 percent of U.S. participants met OAB standards, according to a study.[1-2] Urgency is a prominent OAB symptom that is linked to daytime urination, nighttime urination, and incontinence. The most unpleasant symptom was nocturia. Nocturia is linked to poor sleep, poor health, and depression in the elderly.[3-4]

OAB causes long-term physical and mental health implications, including skin damage from leaks, sleep disruptions, fall-related injuries, depression, hospitalization, nursing home admission, and a decreased quality of life. Patients with OAB had 84 percent more annual doctor visits and 21 percent more urinary tract infections (UTIs), resulting in higher costs and more trips to the doctor.[7-8]

For men, arthritis, depression, heart illness, hypertension, mobility difficulties, neurological problems, recurrent UTIs, benign prostatic hyperplasia, and prostatitis predict OAB. OAB is more prevalent in women with arthritis, depression, IBS, neurological disorders, recurrent UTIs, and sleep apnea. OAB is affected by lifestyle and behavior. BMI >30 kg/m^2 increases OAB risk. Contradictory studies have linked smoking to increased urgency. OAB was linked to caffeine intake >400 mg/day. Some behaviors cause OAB. Insufficient and excessive fluids, coffee, fizzy drinks, spicy foods, artificial sweeteners, and alcohol. OAB can be treated also by identifying modifiable risk factors early.[5-6]

MATERIAL & METHODS

This research is a descriptive and analytic study using a medical record database in the span of the research period. All patients, both Urology polyclinic and inpatients who experienced OAB symptoms, both male and female and were assessed for OAB events

Inclusion criteria are patients with OAB symptoms with any etiology have undergone conservative, moderate, or future or postoperative measures in the study period. The exclusion criteria is the patient cannot be cooperative in filling out the IPSS questionnaire, or the patient refuses.

Consecutively in patients who will be treated conservatively and operatively and met the inclusion criteria. The data that has been collected is edited and entered and then analyzed by descriptive data and analytical correlation. Linear regression calculation is carried out to determine the effect of a variable on the desired result. Multivariate analysis was conducted to simultaneously find the significance of various independent variables on the dependent variable.

RESULTS

There were 562 patients obtained from medical records between 2018-2020. Table 1 shows the demographics and primary data of the sampled patients.

Table 1. Baseline characteristic of the study.

Variable	Mean ± SD	P value
Age (year)	55.91 ± 9.14	0.845
Blood Pressure		
Sistole	146.39 ± 27.03	0.870
Diastole	89.82 ± 54.33	0.829
Height	152.41 ± 7.70	0.299
Weight	63.90 ± 12.60	0.631
Waist size	92.06 ± 11.13	0.938
Arm circumference	35.81 ± 3.47	0.203
Body Mass Index	27.57 ± 5.15	0.837
OABSS Score	1.02 ± 1.05	

The characteristics of the patients in this study were widely distributed. The observed characteristics were age, systolic and diastolic blood pressure, weight, height, waist size, arm circumference, Body Mass Index, and OABSS Score. Based on table 1, the mean age of the participants was 55.91, with an average systolic

Table 2. Correlation analysis between groups of the study.

Parameter	Incomplete Emptying	Frequency	Intermittency	Urgency	Weak Stream	Straining	Nocturia
Incomplete Emptying	x	0.000	0.217	0.000	0.330	0.000	0.000
Frequency		x	0.206	0.000	0.318	0.000	0.000
Intermittency			x	0.206	0.000	0.052	0.709
Urgency				x	0.318	0.000	0.000
Weak Stream					x	0.000	0.004
Straining						x	0.000
Nocturia							x

blood pressure of 146.39 and a diastolic blood pressure of 89.82.

For height, the average was 152.41, and 63.90 was the average for weight. The participants' mean waist size was 92.06 and arm circumference was 35.8. The population distribution has an average BMI of 27.57 and an OABSS Score of 1.02. Correlation analysis between groups was performed using Pearson correlation. Table 2 are results of the correlation analysis can be seen in the following table.

Based on the table 2, no statistically significant correlations between incomplete emptying on frequency, urgency, straining, and nocturia were found. The correlation between incomplete emptying and intermittency is 0.217 which indicates that there is a very weak correlation, while the correlation between incomplete emptying and weak stream is 0.330 which indicates that there is a sufficient correlation.

On the other side, the correlation between frequency and urgency, straining, and nocturia is 0.000 so it also can be concluded that no correlation can be found. Meanwhile the correlation between frequency and intermittency is 0.206 that indicates that there is a very weak correlation, and the correlation between frequency and weak stream is 0.318 that indicates a sufficient correlation.

Based on table 2, it can be seen that the Intermittency correlation to the weak stream is 0.000 which indicates there is no correlation between the two. Meanwhile, the correlation between intermittency and urgency is 0.206 which indicates that there is a very weak correlation. The correlation between intermittency and straining is 0.052 with a very weak correlation. The intermittency correlation with nocturia is 0.709 that shows a strong correlation.

The correlation between the urgency of straining and nocturia is 0.000 which indicates no correlation between the urgency of straining and nocturia. Meanwhile, the urgency of the weak stream has a correlation of 0.318 which indicates a sufficient correlation. In the weak stream and straining, there is a correlation of 0.000, indicating no correlation between the weak stream and straining. Meanwhile, the weak stream and nocturia have a correlation of 0.004, showing a very weak correlation. Furthermore, in straining and nocturia, there is a correlation of 0.000 which indicates there is no correlation between straining and nocturia.

Table 3 are the effect of each parameter on the significance of the IPSS value can be seen in the following table.

Table 3. The Effect of each parameter to IPSS.

Variable	N	*p*
Incomplete Emptying	562	0.001*
Frequency	562	1.000
Intermittency	562	0.001*
Urgency	562	1.000
Weak Stream	562	0.001*
Straining	562	0.001*
Nocturia	562	0.001*

Note: * : indicate p value< 0.05, p-value <0.05 : significant.

Based on table 3, the significance of each parameter to IPSS. Based on the data, Incomplete Emptying has p=0.001, indicating that Incomplete Emptying has a significant effect on IPSS. Meanwhile, Frequency with p = 1.000 shows that Frequency has no significant effect on IPSS. Furthermore, Intermittency has p=0.001, indicating that Intermittency has a significant effect on IPSS. Meanwhile, Urgency with p = 1.000 shows that Urgency has no significant effect on IPSS.

The Weak Stream with p = 0.001 indicates that the Weak Stream has a significant effect on IPSS. This is also found in Straining with p=1.000 which indicates that Straining has a significant effect on IPSS. Meanwhile, Nocturia with p=0.001 showed that Nocturia had a significant effect on IPSS. Thus, it can be concluded that Incomplete Emptying, Intermittency, Weak Stream, Straining, Nocturia have a significant effect on IPSS, while Frequency and Urgency have no significant effect on IPSS.

Tabel 4 is a linear regression analysis that was performed on the IPSS score variable to determine the prediction formula for the most influential IPSS scoring possibility. Frequency, urgency, and nocturia were significant variables ($p<0.05$). We get the equation $y = --0.005 + 0.987X$.

Based on table 4, it shows that in incontinence, the regression calculation has a positive value, indicating a one-way relationship between incontinence and influential parameters in IPSS. The regression relationship has a regression coefficient value of 0.031, which indicates the addition of a parameter of 1 unit, contributing to an increase in the influence of IPSS by 0.031. Meanwhile, p=0.698 (p>0.05) showed an insignificant value to IPSS. The 95% CI for

Table 4. Linear regression analysis for the most influential performed on the IPSS.

Variable	Beta-coefficient	Significant	95%CI	
			Lower limit	Upper limit
Incontinency	0.031	0.698	-0.252	0.377
Frequency	0.117	0.000	0.1	0.345
Intermittency	-0.021	0.334	-0.476	0.162
Urgency	0.35	0.000	0.355	1.029
Weak stream voiding	0.013	0.542	-0.299	0.435
Pain urination	0.001	0.868	-0.046	0.055
Nocturia	0.652	0.000	1.064	1.117

incontinence ranged from -0.252 to 0.377. Thus, it can be concluded that incontinence has a unindirectional but not significant effect with the possible effect of incontinence on IPSS being -25.2% to 37.7%.

For the frequency, the regression calculation has a positive value, indicating a one-way relationship between frequency and the influential parameter in IPSS. The regression relationship has a regression coefficient value of 0.117 which indicates the addition of a parameter of 1 unit, contributing to an increasing influence on the IPSS of 0.117. Meanwhile for p = 0.000 (p <0.05) it shows a significant value to IPSS. 95% CI on Frequency ranges from 0.1 to 0.345. Thus it can be concluded that the Frequency has a unidirectional and a significant effect with the possibility of the influence of frequency on IPSS being 10% to 34.5%.

The regression calculation in intermittency showed a negative value, indicating a non-unidirectional relationship between intermittency and influential parameters in IPSS. The regression relationship has a regression coefficient value of 0.021 that indicates the addition of a parameter of 1 unit, contributing to a decrease in the influence of IPSS by 0.021. Meanwhile for p=0.334 (p>0.05) shows an insignificant value to IPSS. 95% CI on Frequency ranged from -0.476 to 0.162. Thus, it can be concluded that Intermittency has a unidirectional and insignificant effect with the possible effect of intermittency on IPSS being -47.6% to 16.2%.

The regression calculation in urgency showed a positive value, indicating a one-way relationship between urgency and influential parameters in IPSS. The regression relationship has a regression coefficient of 0.35 which indicates the addition of a parameter of 1 unit, contributing to an increase in the influence of IPSS by 0.35. Meanwhile for p = 0.000 (p <0.05) it shows a significant value to IPSS. The 95% CI on urgency ranged from 0.355 to 1.029. So it can be concluded that urgency has a direct and significant effect with the possible influence of urgency on IPSS being 35.5% to 102.9%.

Furthermore, in Nocturia, the regression calculation has a positive value, indicating a one-way relationship between Nocturia and influential parameters in IPSS. The regression relationship has a regression coefficient value of 0.652 which indicates the addition of a parameter of 1 unit, contributing to an increase in the influence of IPSS by 0.652. Meanwhile for p = 0.000 (p <0.05) it shows a significant value to IPSS. The 95% CI for Nocturia ranged from 1.064 to 1.117. It can be concluded that nocturia has a unidirectional and significant effect with the possible influence of nocturia on IPSS in the amount of 106.4% to 111.7%.

DISCUSSION

Modern methods to the treatments of LUTS emphasize the patiens's subjective perception as well as the presence of blockage as determined by IPSS questions.[7-8] According to Gormley et al., the natural history of LUTS, such as urinary frequency, urgency, nocturia, interrupted flow, weak urinay flow, and a sensation of leftover urine, may vary with age, hence influencing the assessment.[11-12]

According to the results of linear regression, the factors of frequency,urgency,and nocturia are significant (p 0.05). The linear regression value of y= 0.005 + 0.987X indicates that the likelihood of LUTS symptoms being connected with OAB increases as the frequency, urgency, and nocturia variables increase.

Acceptance of standardized urological questionnaires that allow for homogeneity and objectivity for many treatment options reinforces

current clinical practice recommendations for selecting patients for surgical treatment based on clinical evaluation. The IPSS score assessment can help decide whether or not to undergo surgery, although more research is needed.[9-10]

The treatment-related OABSS items that corresponded to the patient's urinary diary demonstrated a link between urgency and frequency, which was the dominant parameter in relation to IPSS, in 564 patients. Failure to recognize, treat, and treat OAB can lead to complications, side effects, and a decreased quality of life for patients.[13-14]

Whilst lifestyle change is recommended as the first line of treatment, and pharmaceutical medication may be neglected. Unfortunately, studies have indicated that OAB patients with incontinence who begin therapy have worse outcomes and spend more money than individuals without OAB.[15-16]

The participants' level of education cannot be determined because most of the participants are elderly, and the degree of education is unclear. The degree to which urological symptoms are understood and perceived might also have distinct meanings. The study was also not conducted in a multicenter setting, necessitating additional research with a more stronger study design.

CONCLUSION

Frequency, nocturia, and urgency influence the significance of the IPSS variable on the total IPSS score. Questionnaire items on OABSS have a significant correlation with IPSS scores. Further research is needed to be conducted to determine the role of IPSS and OAB score variables on the incidence of surgery on the etiology of OAB with more robust research methods such as prospective or experimental studies.

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