

RESEARCH ARTICLE

RELATIONSHIP OF AGE AND URINATING BEHAVIOR WITH THE INCIDENCE OF OVERACTIVE BLADDER (OAB) IN FEMALE NURSES AT RISA SENTRA MEDIKA MATARAM HOSPITAL

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ABSTRACT

Introduction: Overactive bladder (OAB) is a chronic syndrome that has a major influence on the quality of life of sufferers. OAB is a prevalent disease, with a general incidence of 16.5%. Female nurses are more likely to get OAB because of their working conditions and poor urinating behavior. Because the risk of infection is greater due to the short urethra in female nurses, so researchers aim to find out the incidence of OAB sufferers in female nurses of the surgical section at Risa Hospital by using OABSS.

Method: This research is a correlative analytical study with a cross sectional design. Cross sectional research is a study whose measurement of variables is done only once at a time.

Result: In this study, 56 samples met the criteria as study subjects, 16 samples had OAB (28.6%) and the rest did not experience OAB. The sample of OAB was divided into 13 mild OAB (23.2%) and 3 moderate OAB (5.4%). The average score of the urinating behavior is 0.47. The average age of respondents was 32 years, with the most age being 28 years.

Conclusion: The prevalence of OAB cases in female nurses in the study was 16 samples (28.6%). Respondents with OAB had an average of worse urination habit scores. Respondents with OAB had a higher average age. The urinating behavior has a very weak opposite correlation with the incidence of OAB in female nurses. Age has a very weak correlation with the incidence of OAB in female nurses.

Keyword: OAB, age, urination habits, Female nurse

Introduction

Urinary bladder is an organ which contain our urine until internal and external stimulations triggers us to urinate. Urinating or micturition process relies on the role of brain cortex, pons, spinal cord, peripheral autonomic nerve, somatic nerve, and sensory nerve as well as anatomical component of lower urinary tract. Malfunction in these components can cause overactive bladder

(OAB). General symptoms of OAB is caused by instability in the urinary bladder.

OAB is a chronic syndrome which significantly affects the quality of life for people who suffers from this condition. This syndrome can disrupt the patient's daily activity.¹ The prevalency of OAB is 16,5% which indicates that this condition is not a rare condition.^{2,3} OAB's main symptoms increases the urge to urinate. This syndrome is

correlated with incontinencia, increased micturition frequencies, and nocturia.^{2,4}

OAB is more often found in women than in men, yet with increasing age, especially people older than 60 years old, this condition is more prevalent in men. OAB in men under 45 years old has a prevalency of 8,5% while in men over 55 years old, the numbers spiked to 21,8%. Another research reportet that there is a significant increase in the prevalency of OAB in men older than 75 and women older than 60 years old (Eapen and Radomski, 2016). OAB is also possible to develop in the productive age. In fact, OAB is more often found in people aged 35-45 years old than in people in 20-22 and 23-27 years old (Palma et al., 2013). Poor urinating behavior also can cause OAB such as diet-induced irritation in the bladder, lack of water, abnormal body mass index (BMI), infrequent micturition, and smoking.⁵

Based on the above explanation, the author is interested in investigating the correlation of age and urinating behavior with the incidence of OAB on Female nurse in Risa Sentra Medika Hospital Mataram.

Research Methods

This research is a correlative analysis research with a cross-sectional design. A cross sectional research design is a research in which the measurements of the variables is only done once in one timeframe. This research utilizes two questionnaires which are Overactive Bladder Symptom Score (OABSS) and Urinating behavior questionnaire in Risa Sentra Medika Hospital Mataram. The inclusion criteria is a Female nurse in Risa Sentra Medika Hospital Mataram and agreed to be the

participant of this research. Total sampling method is used in this research in which all the reachable subject is included in the research.

Results

Sample characteristics

56 samples of Female nurse in Risa Sentra Medika Hospital Mataram were included. This research found 16 samples with OAB (28,6%) and the rest of them does not have OAB. 13 out of 16 samples with OAB is categorized as mild OAB (23,2%) while 3 of them categorized as moderate OAB (5,4%). The average score of the urinating behavior questionnaire were 0,47 while the average age of the participants were 32 years old with the most prevalent age is 28 years old.

OABSS Questionnaire Answers

Based on the collected OABSS Questionnaire Answer, in the afternoon urinating frequency question, 40 samples (71,4%) stated that they urinated ≤ 7 times in the afternoon, 15 samples (26,8%) urinated 8-14 times, and 1 sample (1,8%) urinated ≥ 15 times. While in the night urinating frequency question, 13 samples (23,2%) stated that they doesn't urinate in the night, 34 samples (60,7%) urinated 1 time, and 8 samples (14,3%) urinated 2 times.

Urinating Behavior Questionnaire Answers

Based on the collected Urinating Behavior Questionnaire answers, 37,5% of the participants stated that "I urinate when there were little or no urge to urinate before going to bed", 62,5% of the participants stated "I worry about the hygiene of public toilet" in the preference aspect, 18,8% stated "I postpone



urinating when I'm busy" in the postponing to urinate aspect, and 6,3% each stated "I strain myself to start urinating". "I strain myself to keep urinating", and "I strain myself to finish urinating earlier".

Overview of Urinating Behavior and Age on the incidence of Overactive Bladder

Incidence of OAB	Average urinating behavior score
OAB	48,2
Tidak OAB	46,1

The average score of urinating behavior score in OAB samples is higher in comparison to the non-OAB samples.

	OAB	Non-OAB
	Value	
Mean	32,5	31,7
Median	33,5	32
Modus	28	28
Minimum	26	24
Maximum	38	42

Age comparison of OAB and non-OAB samples. OAB samples showed an older average age than that of non-OAB samples (32,5 years old and 31,7 years old). The most prevalent age is 28 years old.

Variable	OAB			
	No	Mild	Moderate	Severe
Urinating behavior (mean)	0,47	0,45	0,49	-
Age (mean)	31,43	32,09	34	-

The average score of urinating behavior is 0,47 in non-OAB samples, 0,45 in mild OAB samples, and 0,49 in moderate OAB samples. Average age of non-OAB samples were 31,43 years old, 32,09 years old in mild OAB, and 34 years old in moderate OAB.

Variable	OAB
Urinating behavior	
p-value	0,388
Correlation coefficient	- 0,118



	(r)	
Age	p-value	0,330
	Correlation coefficient	0,133
	(r)	

p-value is considered significant if $p < 0,05$

Correlation coefficient (r) is considered:

- Very weak bila $r = 0,0$ s.d. $0,2$
- Weak bila $r = 0,2$ s.d. $0,4$
- Moderate bila $r = 0,4$ s.d. $0,6$
- Strong bila $r = 0,6$ s.d. $0,8$
- Very strong bila $r = 0,8$ s.d. 1

Negative r value means a negative correlation.

Statistical analysis between urinating behavior and OAB resulted in the p-value of 0,388 with the correlation of -0,118. These result indicates that there were very little correlation between those two variables and statistically insignificant. Statistical analysis between age and the incidence of OAB resulted in the p-value of 0,330 with the correlation 0,133. These result indicates that there were very little correlation between the two and statistically insignificant.

Discussion

OAB syndrome is a chronic condition which hugely affects the quality of life of the patient. OAB can affect the performance of everyday tasks and also social function such as working. This is because of the fact that the symptoms of OAB is the increasing urge to urinate and also increasing frequency and nocturia, with or without incontinentia, and also with or without urinary tract infections. Research regarding OAB in the United States of America reported a high prevalency of OAB with 16,5% out of 33 million patients across all countries. Similar study which conducted in Europe showed the average age of OAB patients was over 40 years old with an increasing prevalence with increasing age. This number can be higher because most of the

patients were undiagnosed because of the pudency to acknowledge it's symptoms and also doesn't feel that this condition is bothering them hence didn't seek for care . One of the at-risk population is nurse. OAB can cause occupational stress in Female nurse.

In this study, it was found that the prevalence of OAB in Female nurse was 28,9%. Similar result was also found in Female nurse population in China with a prevalence of 27,57% and the most prevalent age is under 35 years old . A study conducted by Xu et al. found a higher prevalence in his study with 32% of the population .⁷ The average age of OAB patients were 32,5 years old. A study conducted by Zhang et al. and Xu et al. showed a similar result with 31,1 years old and 30,2 years old .^{6,7} OAB is most prevalent in the age of 28 years old and Xu et al., in his study, also found a similar result with the most prevalent age group is 26-30 years old.⁷⁻⁹

This research found that most of the Female nurse who suffers from OAB has a particular concern on the hygiene of the public toilet. This concern is thought to cause them to avoid using the public toilet and, therefore, hold their urge to urinate until they get home. A study regarding participant's behavior regarding the use of public toilet has showed

that the utilization of public toilet gave a negative experience on it's user. Several participants also showed fear and worries regarding public toilet usage. Several factors which affect someone in avoiding the use of public toilet is privacy reasons and also it's hygiene .⁹ This results is different from a result of a study conducted by Xu et al. in which he stated that most Female nurse would rather postpone her urge to urinate. Xu et al. found that 51,7% of the samples were concerned with the hygiene of the public toilet, while 33,3% is avoiding it. Another study showed that 75% of women is concerned in the hygiene of the public toilet and this concern is related with the position during urinating. This position is also called hovering which lowers the urine flow rate because of the low relaxation of the pelvic floor muscles.

A study conducted by Kowalik et al. showed a correlation between the preference of their house with urinary tract functions. This study which conducted in the USA investigate the urinating behavior of women showed that many of it's sample has a bad urinating behavior. Almost all respondents stated that they concernec about the hygiene of the public toilet. Most of them strongly avoid using the public toilet, urinate before going out of their house, and try to hold their urge to urinate until they arrived at their house. Similar behavior is also found in this study which most of the sample postpone their urge to urinate while being busy working and straining themselves to be able to urinate faster. A study similar to this one showed that 26% of their sample strongly limit their use of public toilet .¹⁰ They also often do hovering while urinating. Besides of the hygiene reasons, they also concerns about the quality of the public toiolet and also privacy. It is found that women who limits their use of public toilet is more often to

have bad urinating behavior and lower urinary tract symptoms .¹¹

This study doesn't found any significant result. This insignificancy is thought to be caused by internal and external factors. Internal factors are the small amount of sample dan the high possibility of recall bias because of the nature of the questionnaire while external factors are other factors that are also affects the incidence of OAB in Female nurse such as occupational stress and BMI .^{12,17} Other internal factors that can be considered is anxiety. One systematic review showed a significant correlation between anxiety and the incidence of OAB. Several studies that were included in this systematic review has found a coexistence between lower urinary tract symptoms and anxiety, obsessive compulsive disorder (OCD), dan attention deficit/hyperactivity disorder (ADHD). Hence, psychiatric nurse is also a confounding factor that affect the result of this study .¹³

The use of behavioral change intervention has been used since a long time ago in the management of urgency, incontinencia, and other symptoms of OAB. One of the example is bladder drill. Bladder drill is an intervention made to increase the interval between urinating to create a normal urinating frequency and normalize the function of the bladder. Bladder training is a modified version of bladder drill which done gradually on an outpatient basis. Bladder training has been found to be able to decrease the incidence of incontinencia in older women. Multicomponen behavioral training (MBT) is a form of bladder training which focuses on the exercise of pelvic floor muscles. MBT has a profound focus on the change in physiological response of the bladder and pelvic floor muscles and not really focusing on the urinating behavior. A systemati review which published



in 2002 investigated the effect of behavioral changes in the symptoms improvement in OAB patients. The included studies of this systematic review utilizes bladder drill in OAB patients for 7 until 10 days. These patients has a precise and nurse-monitored urinating schedule. In severe urgency cases, bladder drill can be accompanied by anticholinergic therapy. A study by burgio in 2002 reported a cure rate of 82-86% which showed that a proper urinating behavior can help to improve the condition of patients with OAB .¹⁴

A randomized controlled trial done in USA reported a similar result in men. It was found that behavioral change therapy can improve the symptoms of OAB better than pharmacological therapy alone and in some aspects has a similar result with combination therapy (behavioral change therapy and pharmacological therapy) .¹⁴

A meta-analysis that was also done in USA investigated the correlation between bad urinating behavior because of occupational reasons with the incidence of lower urinary tract symptoms in women. It was found that prolonged infrequent urinating behavior is a bad urinating behavior. Such a behavior can be caused by occupational reasons such as heavy-lifting occupation, occupation with huge burden, a hot/cold work environment, and work that requires the worker to use a particular outfit or uniform which limits their ability to urinate. In that study, it was found that nurses has a huge burden and a very high prevalence of lower urinary tract symptoms .¹⁵ Another study also found a similar result which several particular occupation has a relatively fast pace therefore causing the worker to postpone their urge to urinate. The availability, or rather unavailability, of toilet in the workplace is also another condition that causing OAB. A study in Female nurse has

found that Female nurse only urinates 0-2 times in 8 work hours .¹⁶

Besides the modification of urinating behavior and bladder training, a review hypothesized that modifying the lifestyle factors can helps decreasing the incidence of OAB. Smoking and consuming bladder irritant such as alcohol, caffeine, and carbonated beverages can also caused OAB while consuming a sufficient amount of mineral water can lower the incidence of OAB .¹⁷

This study also didn't dound a significant result between age and the incidence of OAB. This result is different from the result reported by Zhu et al. who found a significant result between age and the incidence of OAB ($p=0,00$). This difference is thought to be caused by internal and external factors which has been discussed earlier. Similar result was also found by a study conducted in UsA which found that with increasing age, the possibility of developing lower urinary tract symptoms is also increased. Age is thought to be correlated with sphincter deficiency and an increase in the prevalence of OAB. Urothelium and suburothelial space can detects the fullness of the bladder by releasing acetylcholine and adenosine triphosphate which can bind to a receptor in cajal interstitial cell. This neurotransmitter is increasing along with increased age. The excessive release of neurotransmitter will cause excitation in the afferent nerve which then caused a detrusor hypersensitivity and spontaneous contraction. This mechanism is thought to have significant role in the development of the urgency in OAB patients .^{16,17}

The limitation of this study is that the confounding variables such as occupational stress was not analyzed. Besides that, because of the nature of retrospective study design,



there is a possibility of recall bias in which the participants of the study is forgotten some aspects in the questionnaire. The author of this study was also not able to meet directly with the participants because of COVID-19 pandemic condition therefore the author was not able to demonstrate how to fill the questionnaire properly.

Conclusion

The prevalence of OAB case in Female nurse in this study is 16 samples (28,6%). The OAB samples is further categorized into mild OAB with 13 samples (23,2%) and 3 moderate OAB with 3 samples (5,4%). Samples with OAB has an worse average score in the urinating behavior questionnaire in comparison to the non-OAB samples. OAB samples also showed a higher average age in comparison with non-OAB samples (32,5 and 31,7). The most prevalent age in OAB sample was 28 years old. Urinating behavior has a negative and insignificant correlation with the incidence of OAB in Female nurse with a p-value of 0,388 and correlation coefficient of -0,118. These results indicates that there was a negative correlation between urinating behavior and the incidence of OAB which statistically insignificant. Age has a positive yet also insignificant correlation with the incidence of OAB in Female nurse with a p-value of 0,330 and correlation coefficient of 0,133. These result indicates that there was a positive correlation between age and the incidence of OAB which statistically insignificant.

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