

## Micturition Position Model for Handling Patient With Benign Prostate Hyperplasia

Gunandar Rachmadi<sup>1\*</sup>, Suyadi<sup>2</sup>, Zaenal<sup>2</sup>, Bagyo<sup>3</sup>

- 1) University of Brawijaya, Doctoral Program Environmental Studies, Graduate Program, Veteran Malang
- 2) University of Brawijaya, Faculty of Animal Husbandry, Veteran Malang
- 3) University of Brawijaya, Department of Biology Faculty of Science, Veteran

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### ABSTRACT

Benign prostate enlargement, or better known as BPH are often found in men who tread the elderly. One of non-pharmacologic efforts to reduce the post-void residual urine in patients with BPH LUTS is by changing the position of the different voiding. This research is an experimental study with cross-sectional approach to the population of all patients with BPH. This study was divided into 2 groups. The first group consisted of 8 patients with BPH LUTS IPSS in the top 8, and the results are under 15 uroflowmetri laboratory tests including: CBC, blood chemistry tests, urinalysis, urine culture, and the level of PSA (prostate-specific antigen) is also performed. 8 patients with symptomatic BPH bladder emissions were evaluated in a standing position, sitting and squatting by using uroflowmetri. 8 patients with symptomatic BPH results uroflowmetri less than 15, given the combination drug medications alpha adrenergic antagonist and 5-alpha reductase inhibitors for 1 month, 3 months, 6 months, and evaluated back urination emissions. In this study analysis used ANOVA. The results showed that the number of post-void urine volume by voiding a squatting position in the group of patients without drug administration (73.50 mL) was still higher than the standing position in the group with the administration of drugs 0 month (63.86 ml), the administration of drugs one month (64.43 ml) and a group of post-TUR of the prostate (41.88 ml), but was lower when compared to a standing position in the group of patients 3 months of drug administration (79.14 ml) and 6 months of drug administration (80, 36 ml) with the provision of residual urine volume is a sitting room for the post-TUR group of patients with a prostate volume of 33.06 ml. Residual urine volume difference was statistically significant ( $p\text{-value } 0.000 < \alpha 0.05$ ).

**KEYWORDS:** Micturition Position, benign prostate enlargement (BPH), Model

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### INTRODUCTION

Benign prostate enlargement or better known as BPH is often found in men who tread the elderly. The term BPH or benign prostatic hyperplasia is actually histopathological terms, i.e. there is hyperplasia of stromal cells and epithelial cells of the prostate gland. Benign prostatic hyperplasia can be experienced by approximately 70% of men over the age of 60 years. This figure will increase to 90% in men aged over 80 years.

Although rarely life-threatening, BPH complainant annoying and disrupt daily activities. This situation is the result of an enlarged prostate gland, or benign prostate enlargement (BPE) that causes obstruction of the bladder neck and urethra or bladder outlet obstruction known as (BOO). Special obstruction caused by an enlarged prostate gland called prostate hyperplasia obstruction (BPO) [1]. This obstruction over time can lead to changes in the structure of the bladder and kidneys, causing complications in the upper and lower urinary tract.

Histological evidence of the existence of benign prostatic hyperplasia (BPH) can be found in most men, if they live long enough. However, not all patients with BPH develop into symptomatic BPH (symptomatic BPH). Histological examination at autopsy, BPH increases with age, 20% in men aged 41-50 years, 50% in men aged 51-60 years, and over 90% in men aged over 80 years. The prevalence of symptomatic BPH in men aged 40-49 years to reach nearly 15%. This figure increases with age, so at the age of 50-59 years, the prevalence of nearly 25%, and at the age of 60 years to reach the figure of about 43% [2]

Frequently complaints by patients with BPH is LUTS (lower urinary tract, symptoms) consisting of: symptoms of irritation (storage symptoms) which include: urinary frequency increases, urgency, nocturia and obstructive symptoms (voiding symptoms), namely: emission micturition weak and often disjointed (intermittency) and was not satisfied after micturition (residual urine), began to urinate long (hectancy), after the urinary dripping (terminal dribbling) and the next phase occurs retention The relationship between BPH with

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\*Corresponding Author: Gunandar Rachmadi, University of Brawijaya, Doctoral Program Environmental Studies, Graduate Program, Veteran Malang, email: [Gunandar.rachmadi@gmail.com](mailto:Gunandar.rachmadi@gmail.com)

LUTS very complex. Not all BPH patients complain of micturition disorders, and otherwise not all complaints of micturition caused by BPH.

The therapy that will be administered to the patient depends on the level of complaints of patients, complications occurred, the means available, and the choice of the patient. In various regions in Indonesia the ability to perform diagnostic and therapeutic modalities BPH patients is not the same because of the differences in facilities and human resources in each region. Nevertheless, doctors in remote areas are expected to handle BPH patients with the best. Preparation of guidelines in many developed countries turned out to be useful for doctors and urology specialist in handling cases of BPH correctly [3]

A risk factor for BPH is less known. Some studies say associated with genetic predisposition and race. BPH surgery in patients aged less than 60 years, the possibility of 50% due to genetic factors. The incidence of BPH in Indonesia certainly has not been investigated, but as an illustration of hospital prevalence in the two major hospitals in Jakarta, the RSCM and Sumberwaras for 3 years (1994-1997), there were 1040 cases [4]

The management of patients with symptoms of BPH LUTS is to provide treatment. There are 3 kinds of drug administration, namely: alpha adrenergic receptor inhibitors, 5 alpha reductase inhibitors, and combination of both [5]. Evaluation of the results of treatment performed using uroflowmetri.

Total bladder emptying after micturition is important, because if the residual urine after micturition much can cause urinary tract infections and bladder stones. BPH is one of the causes of post-voiding residual urine. Post-micturition residual urine left, the longer the more that will eventually lead to the occurrence of urinary retention. Efforts to reduce post-voiding residual urine in BPH patients with LUTS is to prescribe alpha-adrenergic receptor blockers, 5 alpha-reductase inhibitor or a combination of both

The position of micturition was also affecting the quality of the emission of urine and reducing post-micturition urine volume in patients with BPH. Different micturition position is influenced by social, cultural and medical. Most of the men in western countries do micturition in a standing position, but the majority of men in Asia and the Middle East prefer micturition sitting or squatting position. Jurisprudence of the Sunna book mentioned that there is no pee while standing because it is contrary to propriety and there are good and also to avoid sparks. Aisha said r.a.: "Who said that the Holy Rasululloh urinate standing up, do not believe it! He never pisses except sitting down. "

## METHODS

This research is Experimental Study by using cross-sectional study, the population of all patients complaining of LUTS (lower urinary tract symptoms) was treated in RSU Urology Poly Gambiran Hospital Kediri, this study was divided into 2 groups. The first group consisted of 8 patients with BPH LUTS IPSS above 8, and the results uroflowmetri under 15. Then the measured emission of urine in three positions standing, sitting and squatting. Uroflowmetri examination is done by using urodyn device. Uroflowmetri first examination performed in a standing position and results recorded. Then, after the residual urine volume was measured by inserting a catheter Nelaton 8-F, and as a prophylactic injection gentamycin 80 mg intramuscularly. If the results of uroflowmetri are more than 15 ml / s then it means there is no obstructive and patients were excluded from this study, and if the residual urine volume exceeds 100 cc are also excluded from this study.

The second uroflowmetri do the next day in a sitting position by using a special chair. The results were recorded and residual urine was measured using a catheter Nelaton 8-F. The total amount of urine, either issued from spontaneous micturition ways as well as from measuring residual urine, arranged around 150-300 ml. The third Uroflowmetri do the next day with a squat position and carried out the procedure as above.

All patients noted the result of the maximum flow rate, average flow rate, maximum flow time, and residual urine volume, in standing, sitting, and squatting, and then the results are compared. Results uroflowmetri of micturition position standing, sitting, and squatting, analyzed and the results are divided into a maximum flow rate of less than 10 mL / s and between 10 mL / s - 15 mL / s, and then the results were compared with paired t-test statistic test and considered significant when P value less than 0.05.

The second group consisted of 8 patients with BPH LUTS IP over 8 and under 15 uroflowmetri results, given drugs antiprostata combination of alpha adrenergic receptor blockers and 5 alpha reductase. Before being given the drug, all patients were measured emission of urine with uroflowmetri in a standing position. Then the patients

were given the drug taken once daily for 6 months and re-examination uroflowmetri remain standing up after 3 months and 6 months.

The method of analysis is divided into 2 descriptive aimed to gain an overview of the condition of the variables. As well as inferential statistical analysis this focuses on the field of study analysis and interpretation of data to draw conclusions. Inferential Statistical Methods used in the data analysis of this research is the analysis of variance (ANOVA).

## RESULTS AND DISCUSSION

### A. Effect of Standing Position against Spending When Miksi Urine in BPH patients with LUTS

Testing the activity of the position of micturition stand against the expenditure of urine in patients with BPH with LUTS post TUR with variable volume (ml), flow time (s), flow rate (ml / s) and post void residual urine volume (ml) can be seen in Figure 1. The results showed that by standing micturition urine volume average at best are those of the administration of drugs for 0 months (control treatment) with a volume of 214.21 ml, while the smallest average volume of urine found in the group without administration of drugs by volume 136 , 86 ml. Volume difference between the groups was not statistically significant ( $-p\text{-value } 0.675 > \alpha 0.05$ ). Variable flow time on the time required to complete the micturition in a standing position most quickly are those of Post-TUR of the prostate that is equal to 26.52 seconds, while the longest time there is the group of patients with drug treatment 0 months. The difference in flow time is statistically significant ( $p\text{-value } 0.017 < \alpha 0.05$ ).

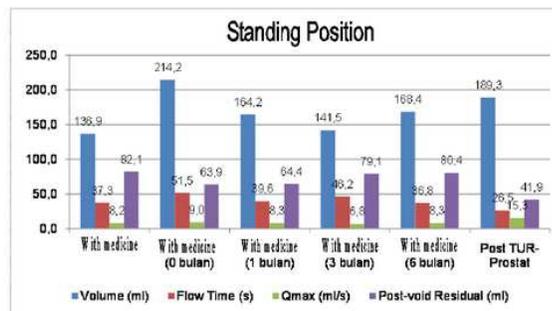


Figure 1. Testing Activity Miksi standing position against the discharge of urine in patients with LUTS & PBH in Gambiran Hospital Kediri

The results showed that no significant volume, but the flow time is significantly affected by the treatment carried out with the lowest average result is the group Post-TUR of the prostate that is equal to 26.52 seconds. BPH prostate gland surgery patients aim at eliminating the obstruction of urine flow. Transurethral resection (TUR) of the prostate or transurethral resection of the prostate (TURP) became one of the options of surgery to resolve urinary tract obstruction. TURP is via endoscopy transurethral surgery without incision open. This process will remove barriers urine passes through the urethra, thereby increasing urine output discharge.

### B. Effect of Sitting Position When Miksi Against Spending Urine In BPH patients with LUTS

Testing the activity of the position of micturition sitting on the expenditure of urine in patients with BPH with LUTS post TUR with variable volume (ml), flow time (s), flow rate (ml / s) and post void residual urine volume (ml) can be seen in Figure 2.

The results showed differences in the position of sitting on voiding urine volume in patients with BPH LUTS in mind that by doing sit micturition urine volume average of the largest found in the group of patients Post TUR-prostate with 201.56 ml volume, while the average volume of urine contained in the smallest group the drug delivery down at least 3 months. The difference in volume between the groups was not statistically significant ( $-p\text{-value } 0.733 > \alpha 0.05$ ). The variable volume post-void residual urine is known that by doing sitting position micturition residual urine volume was lowest for the group of patients post-TUR of the prostate with a volume of 35.19 ml, while the volume is highest in the group of patients without the administration of drugs with a volume of 77.46 ml, The difference in the volume of residual urine revealed statistically significant ( $p\text{-value } 0.001 < \alpha 0.05$ ).

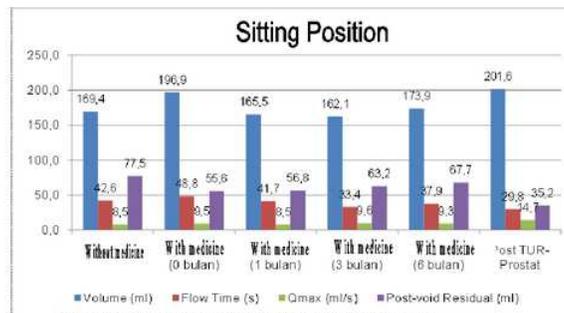


Figure 2. Testing Activity Miksi sitting position against the discharge of urine in patients with LUTS & PBH in Gambiran Hospital Kediri

### C. Effect Position against Squatting When Miksi Expenditure Urine in BPH patients with LUTS

Testing the activity of the position of micturition squat against the expenditure of urine in patients with BPH with LUTS post TUR with variable volume (ml), flow time (s), flow rate (ml / s) and post void residual urine volume (ml) can be seen in Figure 3.

The results showed differences micturition squatting position against urine volume in patients with BPH LUTS in mind that by doing squats micturition urine volume average of the largest found in the group of patients with the administration of drugs 0 months with a volume of 222.43 ml, while the average volume of urine contained in the smallest group without administration of drugs with a volume of 170.43 ml. The difference in volume between the groups was not statistically significant ( $p\text{-value } 667 > \alpha 0.05$ ).

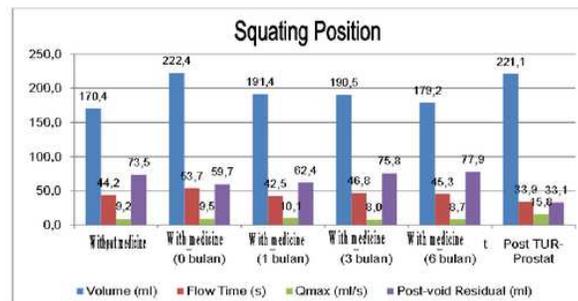


Figure 3. Testing Activity Miksi squatting position against the discharge of urine in patients with LUTS & PBH in Gambiran Hospital Kediri

The variable post-void residual volume of urine in mind that with do sitting position micturition residual urine volume was lowest for the group of patients' post-TUR of the prostate with a volume of 33.06 ml, while the volume is highest in the group of patients with medication for 6 months with a volume of 77.93 ml. The difference in the volume of residual urine revealed statistically significant ( $p\text{-value } 0.000 < \alpha 0.05$ ).

Culture that developed in the community to carry out micturition in men in general with attitude standing upright and the women are squatting. In this study conducted in respondents who are all men so accustomed to a stand at this point. Micturition is the process of urination, ethically should be done in a closed room with a squat stance. Micturition attitude is related to choice of personal attitude, whether micturition stand or squat. The position of micturition in men is usually assumed to be more frequent in the standing position. Women are assumed in a squatting position. Anatomically it is different between squat position and a standing position.

At the maximum stretch squat position occurs extensor muscles in the thigh and stretch the adductor muscles. Lower limb flexor muscles are also in a state of relative weakness, especially muscle triceps surae. This extensor muscles are m.rectus berorigo femoris, medial m.vastus berorigo in linea aspera. m.vastus intermedius in the corpus femoris, lateral m.vastus berorigo in linea aspera. This position gives a boost to the process of urine output to the maximum, because the squat position to the maximum pressure on the urethra

Based on the results of analysis show that in the group without drug administration almost half of the respondents (42.9%), the group with the administration of drug combinations Alpha Adrenergic antagonists and inhibitors of 5-Alpha Reductase majority of respondents (57.1%) had mild anxiety levels and groups Post TUR-Prostate majority of respondents (62.5%) had mild anxiety level. This indicates that most respondents experienced anxiety in the mild stage. In the state of stress occurs on the activation of the amygdale in the limbic system. This system

will stimulate the release of hormones from the hypothalamus is corticotropic releasing hormone (CRH). This hormone directly inhibits the secretion of GnRH from the hypothalamus production in the arcuate nucleus. Increased CRH stimulates the release of endorphins and anti-diuretic hormone (ADH) into the blood. Accentuation release of anti-diuretic hormone (ADH) response to dehydration is reduced and increased dependence on renal prostaglandins to maintain perfusion. The urinary tract and genital arise refractory extension of time for the erection in men, decreased intensity of orgasm in men and women, reduced secretion of the prostate in urine and emptying the bladder is not perfect as well as an increase in residual urine volume. The impact of the disposal conditions of incomplete urinary bladder is full causes and stimulates contractions of the bladder muscle so as to encourage the desire to urinate. This condition causes although respondents in implementing the micturition using the squatting position, but because there is a state of stress causing the respondents still have considerable residual urine.

Adductor thigh muscle is m.pectineus, m.adductor brevis, adductor longus, adductor magnus. These muscles are inserted in the corpus femoris and berorigo in the pubic ramus. Time squat, weight is upheld by the lig. patella, lig. iliofemoralis, lig.ischio femoral lig. pubofemoralis and affirmed by the retention of caput femoris at the crook of the acetabulum. Berorigo surae triceps muscles on the femur and tibia, inserts ligament calcanei (Achilles tendon). Time squat occurs stretching muscles that are inserted in the arm berorigo in the body, with a lean arm position on the knee, so that the process is better inspiration for the development of optimal chest cavity thereby increasing venous return and cardiac output spontaneously. With relaxes these muscles when squatting, reached the atmosphere relaxed and calm by itself in mental status to be quiet, so that time could happen micturition squat against self-evaluation process and understand the appropriate feedback from the recent experience with reflection and evaluation. State of relaxation during a squat can be beneficial to produce a response that can combat stress response. When the goal is achieved, then the action of the hypothalamus will adjust and decrease the activity of the sympathetic and parasympathetic nervous systems. The sequence of physiological effects and symptoms and sign will be disconnected, and physiological stress will be reduced. This is a response that must be learned and requires practice and master. Relaxation is an effective method, especially in patients with chronic pain. Breathing exercises and relaxation techniques lowers oxygen consumption, respiratory rate, heart rate, and muscle tension, which is to stop the cycle of pain-anxiety-tension.

## CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis, the conclusions in this study are as follows:

1. Based on the analysis it appears that voiding position affects the volume of post-void residual urine and squat position can be useful to minimize the volume of post-void residual urine. Micturition bladder by means squat us depressed so drained the urine we are in the bladder. Actually squatting position during micturition in accordance with the conditions of the facilities and infrastructure is available in the community.
2. Patients without administration of drug combinations for all the measurement parameters have no significant differences in the urine output, except for residual urine seen a significant difference, with a squatting position that gives the least residual urine.
3. The results showed differences in the position of micturition to the volume of urine in the patient group administration of a combination of drugs Adrenergic antagonists Alpha And Inhibiting 5-Alpha Reductase known that squatting has an average value of most large volumes of urine, followed by standing and sitting for. Seen that squat position can generate the greatest volume of urine than standing or sitting position but the differences were not statistically significant. Based on the flow time it is known that the sitting position has the fastest time followed by and a squat position, but these differences were not statistically.

### Recommendation

Based on the description above conclusions, the authors recommend the following:

1. For the Hospital is advisable to make and implement policies in the handling of the fulfillment of basic needs for BPH patients with LUTS associated with the particular needs of micturition elimination, to provide education to the patient to choose a squatting position.
2. For further research based on the findings of the research related to the most ideal position in the implementation of micturition in BPH patients with LUTS, it is advisable to dig deeper into the problems of implementation and the level of difficulty associated with correlation analysis with the culture that developed in the community.

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