



Factors Associated with the Incidence of Stress Urinary Incontinence in Uterine Prolapse Cases at RSUD Dr. Soetomo Surabaya

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ABSTRACT

Background: Urinary incontinence (UI) is the involuntary leakage of urine, which can cause problems and have a negative impact on quality of life. Stress urinary incontinence is one of the subtypes of urinary incontinence which is defined as the involuntary expulsion of urine during exertion or physical activity, or sneezing, or coughing. The purpose of this study was to explain the relationship between age, type of delivery, parity, and body mass index with the incidence of stress urinary incontinence in cases of uterine prolapse at RSUD Dr Soetomo Surabaya.

Method: This type of research is a quantitative research using analytical observational method, with a cross sectional approach. The sampling technique in this study was total sampling that met all inclusion and exclusion criteria. The independent variables of this study were age, type of delivery, parity, and body mass index. The dependent variable of this study is stress urinary incontinence.

Result: Fisher's Exact test results on age, type of delivery, parity, and body mass index obtained p-values of 0.004, 0.021, 0.021, 0.014, 0,014 respectively. Because the p value of the five variables > 0.05, it can be concluded that H1 is accepted.

Conclusion: There is a relationship between age, type of delivery, parity, body mass index, and degree of uterine prolapse. The results of the logistic regression test showed that the variable most related to the incidence of stress urinary incontinence was age.

Keywords: *Degree of uterine prolapse, body mass index, stress urinary incontinence, type of delivery, parity, age*

INTRODUCTION

According to the International Continence Society (ICS), urinary incontinence (UI) is involuntary leakage of urine, which can cause physical, psychological, sexual, economic, and social problems and have a negative impact on quality of life¹. Stress urinary incontinence is one of the sub-types of urinary incontinence which is defined as the involuntary expulsion of urine during exertion or physical activity, or sneezing, or coughing².

Estimates of the number of women experiencing Stress Urinary Incontinence (SUI) vary widely because there is no clear definition of the condition. However, abnormal leakage is a common medical condition and although there is wide variation in reported prevalence, some investigators report that 25-45% of women have experienced some degree of incontinence in the past year and about 2/3 will have SUI or SUI with urge incontinence. About a third of women aged 30 to 60 years, and a third of women under the age of 30 years experience urinary incontinence. For women over the age of 65 more than half report some type of urinary leakage³.

Urinary incontinence (IU) and pelvic organ prolapse (POP) are common conditions which, although rarely have severe morbidity, can be costly and positive. The negative effects of the condition are not trivial, ranging from urinary tract infections, skin rashes, and decubitus ulcers and self-esteem, social isolation, and shame, in addition, the annual cost of related incontinence in the US alone exceeds 16 billion dollars⁴.

Previous studies have suggested that prolapse is associated with UI because the pelvic floor muscles weaken with age, creating pressure on the bladder, uterus, and rectum¹. Approximately 55% of women with stage II POP and 33% with stage IV POP have concurrent SUI⁵.

Based on this phenomenon, it can be seen that stress urinary incontinence (SUI)

and pelvic organ prolapse (POP), one of which is uterine prolapse, have a negative impact on women's quality of life and these two things often occur together, but the relationship is still complicated and many factors are still unknown. Thus, it is necessary to conduct research on the factors that influence the occurrence of stress urinary incontinence in cases of uterine prolapse.

METHOD

This study uses an analytical observational method which has the aim of observing or measuring variables without any intervention or manipulation. Using a cross sectional research design with a retrospective approach. The sampling technique in this research is total sampling.

The independent variables of this study were age, type of delivery, parity, and body mass index. While the dependent variable is stress urinary incontinence.

This research was conducted from August to October 2021 at the Medical Record Installation and ITKI RSUD Dr. Soetomo. The research data was obtained from patient medical records from January 2020 to July 2021.

To test the relationship between variables using the Chi-Square test, if the data obtained do not meet the requirements then do the Fisher's Exact test.

RESULT

1. Subject Characteristics

Data collection was carried out on 22 patients with uterine prolapse in RSUD Dr. Soetomo Surabaya in January 2020 – July 2021, the following results were obtained:

Tabel 1 The frequency distribution of stress urinary incontinence in cases of uterine prolapse in RSUD Dr. Soetomo Surabaya January 2020 – July 2021

Variables	Frequency	%
Age		
< 50 years	6	27,27
≥ 50 years	16	72,73
Total	22	100
Type of delivery		
SC	5	22,73
Pervaginam	17	77,27
Total	22	100
Parity		
Primipara	5	22,73
Multipara	17	77,27
Total	22	100
BMI		
< 25 kg/m ²	7	31,82
≥ 25 kg/m ²	15	68,18
Total	22	100
Degree of uterine prolapse		
I-II	7	31,82
III-IV	15	68,18
	22	100

The results of data collection carried out on 22 uterine prolapse patients at Dr. Soetomo Surabaya in January 2020 - July 2021 found 15 people (68.18%) experienced stress urinary incontinence. Table 1 shows that patients aged <50 years were 27.27% while the percentage of patients aged 50 years was higher at 72.73%. Percentage of patients with vaginal delivery was higher at 77.27% compared to patients with cesarean delivery which was 22.73%. Patients with more than 1 parity (multipara) were 77.27% higher, while primiparous patients were 22.73%. Percentage of uterine prolapse patients with body mass index 25 kg/m² was 68.18%, while body mass index <25 kg/m² was 31.82%. Percentage of uterine prolapse patients who experienced grade III-IV uterine prolapse

was 68.18%, while grade I-II uterine prolapse was 31.8%.

2. Relationship Between Age and Stress Urinary Incontinence

Tabel 2. The relationship between age and stress urinary incontinence in cases of uterine prolapse at RSUD Dr. Soetomo Surabaya January 2020 – July 2021

Age	Non SUI n	SUI n	Total n	P
< 50 yr	5	1	6	0,004
≥ 50 yr	2	14	16	
Total	7	15	22	

Table 2 shows the results of the Fisher's Exact Test on the age variable and obtained p value = 0.004 (p < 0.05), so it can be concluded that there is a significant relationship between age and stress urinary incontinence in cases of uterine prolapse at RSUD Dr. Soetomo Surabaya.

3. Relationship Between Type of Delivery and Stress Urinary Incontinence

Tabel 3. The relationship between type of delivery and stress urinary incontinence in cases of uterine prolapse at RSUD Dr. Soetomo Surabaya January 2020 – July 2021

Mode of birth	Non SUI N	SUI n	Total n	p
CS	4	1	5	0,021
Pervaginam	3	14	17	
Total	7	15	22	

Data analysis using the Fisher's Exact Test in table 3 obtained p value = 0.021 (p < 0.05), so it can be concluded that there is a significant relationship between the type of delivery and stress urinary incontinence in cases of uterine prolapse at RSUD Dr. Soetomo Surabaya.

4. Relationship Between Parity and Stress Urinary Incontinence

Tabel 4. The relationship between parity and stress urinary incontinence in cases of uterine prolapse at RSUD Dr. Soetomo Surabaya January 2020 – July 2021

Parity	Non n	SUI n	Total n	p
Primipara	4	1	5	0,021
Multipara	3	14	17	
Total	7	15	22	

Table 4 of the Fisher's Exact Test results obtained p value = 0.021 (p < 0.05), so it can be concluded that there is a significant relationship between parity and stress urinary incontinence in cases of uterine prolapse at RSUD Dr. Soetomo Surabaya.

5. Relationship Between Body Mass Index and Stress Urinary Incontinence

Tabel 5. The relationship between body mass index and stress urinary incontinence in cases of uterine prolapse at RSUD Dr. Soetomo Surabaya January 2020 – July 2021

BMI	Non n	SUI n	Total n	p
< 25	5	2	7	0,014
≥ 25	2	13	15	
Total	7	15	22	

Data analysis using Fisher's Exact Test was obtained p value = 0.014 (p < 0.05), so it can be concluded that there is a significant relationship between body mass index and stress urinary incontinence in cases of uterine prolapse at RSUD Dr. Soetomo Surabaya.

6. Relationship Between Degree of uterine prolapse and Stress Urinary Incontinence

Tabel 6. The relationship between degree of uterine prolapse and stress urinary incontinence in cases of uterine prolapse

at RSUD Dr. Soetomo Surabaya January 2020 – July 2021

Degree	Non n	SUI n	Total n	p
I-II	5	2	7	0,014
III-IV	2	13	15	
Total	7	15	22	

Data analysis using Fisher's Exact Test was obtained p value = 0.014 (p < 0.05), so it can be concluded that there is a significant relationship between degree of uterine prolapse and stress urinary incontinence in cases of uterine prolapse at RSUD Dr. Soetomo Surabaya.

7. Factors Most Associated with the Incidence of Stress Urinary Incontinence

Tabel 7. Most related factor of the incidence of stress urinary incontinence in cases of uterine prolapse at RSUD Dr. Soetomo Surabaya January 2020 – July 2021

Variabel	Slope	p	OR
Age	3,555	0,008	35,000
Konstanta	-1,946	0,010	0,143

The column p value (p < 0.05) in table 5.5 shows that 1 independent variable affects the incidence of stress urinary incontinence in cases of uterine prolapse, namely the age variable. The results of the relationship test between the independent variable and the dependent variable obtained an OR of 35,000, so that uterine prolapse patients aged 50 years had a tendency to experience stress urinary incontinence by 35 times compared to patients aged <50 years.

DISCUSSION

1. Relationship Between Age and Stress Urinary Incontinence

In table 2 it can be concluded that there is a significant relationship between age and stress urinary incontinence in cases of uterine prolapse. The most

common occurrence of stress urinary incontinence was found at the age of ≥ 50 years due to decreased muscle tone in the urinary tract. In addition, elderly women experience a decrease in estrogen which results in atrophy of the urethral tissue which causes the urethra to become stiff and inelastic. The results of this study are in line with research conducted by Pangastuti (2018), namely pregnancy in older women (>35 years) is a risk factor for pelvic floor dysfunction. As time goes by, more and more women are choosing careers so that they tend to get older and tend to get older. This condition further increases the risk of pelvic floor dysfunction in the future^[6]. According to Widjanarko (2009) and Reeder, Martin & Griffin (2011), uterine prolapse occurs when the muscles and ligaments of the pelvic floor are stretched due to prolonged labor or old age (usually prolapse occurs at > 55 years of age)^[8]. In another study, it was stated that age 50 years had 9 times the risk of uterine prolapse when compared to age < 50 years^[9].

2. Relationship Between Type of Delivery and Stress Urinary Incontinence

In table 3 it can be concluded that there is a significant relationship between the type of delivery and stress urinary incontinence in cases of uterine prolapse. The incidence of stress urinary incontinence increases in vaginal delivery because the pelvic floor muscles are stretched, weak, or damaged, resulting in loss of bladder and urethral support. The results of this study are in line with research conducted by Noerpramna (2013), namely vaginal delivery is the main risk factor for the incidence of genital organ prolapse. Research on the levator ani and fascia shows the fact that mechanical and nerve damage is obtained in women with prolapse compared to women without prolapse, and it occurs because of the labor process^[7].

In another study stated that vaginal delivery is a factor that greatly influences the incidence of female pelvic floor dysfunction, $> 46\%$ of women with a history of vaginal delivery suffer from pelvic floor dysfunction^[6].

3. Relationship Between Parity and Stress Urinary Incontinence

In table 4 it can be concluded that there is a significant relationship between parity and stress urinary incontinence in cases of uterine prolapse. Women with multiparity have an increased incidence of stress urinary incontinence because childbirth can cause a decrease in the pelvic floor muscles, resulting in bladder leakage due to loss of bladder and urethral support. This study is supported by research conducted by Nuraeni (2017) which states that uterine prolapse is very common in multiparas because it is caused by trauma to the pelvic fascia muscles during childbirth^[8]. Increasing parity increases the risk of pelvic floor dysfunction, particularly POP^[6].

The amount of parity is directly proportional to the occurrence of prolapse. The WHO Population Report (1984) estimates that the incidence of prolapse is 7 times more in women with seven children than women with one child^[7]. Other research states that the higher parity 5, the risk of uterine prolapse is 10 times higher than parity 3^[9].

4. Relationship Between Body Mass Index and Stress Urinary Incontinence

The results of the study in table 5 can be concluded that there is a significant relationship between body mass index and stress urinary incontinence in cases of uterine prolapse. Body mass index >30 kg/m² increases the risk of stress urinary incontinence increases intra-abdominal pressure and bladder. Intra-abdominal pressure causes the length of the urethra to shorten and muscle tone to weaken. In the Women's Health Initiative research, obese

women, namely women with a body mass index $> 30 \text{ kg/m}^2$ had uterine prolapse events with odds ranging from 1.4–1.75 compared to women with normal weight, with a body mass index $< 25 \text{ kg. /m}^2$ ^[9].

The increase in body mass index has a relationship with the progression of POP complaints. Weight gain at 1 year postpartum has a significant relationship with the occurrence of anterior vaginal wall prolapse ^[6].

5. Relationship Between Degree of Uterine Prolapse and Stress Urinary Incontinence

In table 6 it can be concluded that there is a significant relationship between degree of uterine prolapse and stress urinary incontinence in cases of uterine prolapse. The severity of uterine prolapse varies, the most common complaint being urinary disorders, such as urinary incontinence. The patient's symptoms are not specific for distinguishing prolapse from multiple compartments but may reflect the overall degree of prolapse.

6. Factors Most Associated with the Incidence of Stress Urinary Incontinence

The results of the analysis obtained in table 7 show the independent variables that have the most influence on the incidence of stress urinary incontinence in RSUD Dr. Soetomo is age. The older a person is, the more likely they are to experience urinary incontinence, due to changes in the structure of the bladder and pelvic floor muscles. This results in a person unable to hold urine. In addition, there is an abnormal contraction (movement) of the bladder wall, so that even though the bladder has just filled a little, it has caused the urge to urinate. Menopausal women (≥ 50 years) experience a decrease in estrogen levels, resulting in a decrease in vaginal muscle tone and the urinary tract (urethra) muscle tone, causing urinary incontinence.

CONCLUSION

Based on the analysis of the study, it was found that there was a relationship between age, type of delivery, parity, body mass index, and degree of uterine prolapse with the incidence of stress urinary incontinence in cases of uterine prolapse. And the factors most related to the incidence of stress urinary incontinence in cases of uterine prolapse at RSUD Dr. Soetomo Surabaya is age.

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