

Research Article

Correlation of Normal Labor and Vacuum Extraction with Postlabor Stress Urinary Incontinence

Hubungan Cara Persalinan Normal dan Vakum Ekstraksi dengan Stres Inkontinensia Urin Pascasalimdi

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Abstract

Objective: To determine the correlation between normal delivery methods and vacuum extraction with postpartum stress urinary incontinence in West Sumatra.

Methods: This study used *cross-sectional study design* in the Obstetrics and Gynecology Department of the RSUP Dr. M. Djamil Padang, network hospital and Puskesmas in Padang City from October 2018-February 2019. The sampling technique was consecutive sampling. Urinary stress incontinence were assessed using a Questionnaire for Urinary Incontinence Diagnosis (QUID).

Results: There was a correlation between normal delivery and vacuum extraction with stress urinary incontinence after delivery in the province of West Sumatra ($p < 0.05$).

Conclusions: There is a correlation between normal labour and vacuum extraction with stress urinary incontinence after delivery in the province of West Sumatra.

Keywords: normal labour, stress urinary incontinence, vacuum extraction.

Abstrak

Tujuan: Mengetahui hubungan cara persalinan normal dan vakum ekstraksi dengan stress inkontinensia urin pascasalim di Provinsi Sumatera Barat.

Metode: Penelitian ini menggunakan desain potong lintang di Poliklinik Bagian Obstetri dan Ginekologi RSUP Dr. M Djamil Padang, RS jejaring dan Puskesmas di Kota Padang sejak bulan Oktober 2018-Februari 2019, Teknik pengambilan sampel dengan consecutive sampling. Penilaian stress inkontinensia urin dengan menggunakan Questionnaire for Urinary Incontinence Diagnosis (QUID).

Hasil: Terdapat hubungan cara persalinan normal dan vakum ekstraksi dengan stress inkontinensia urin pascasalim di provinsi Sumatera Barat ($p < 0,05$).

Kesimpulan: Penelitian menyimpulkan terdapat hubungan cara persalinan normal dan vakum ekstraksi dengan stres inkontinensia urin pascasalim di provinsi Sumatera Barat.

Kata kunci: persalinan normal, stres inkontinensia urin, vakum ekstraksi.

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INTRODUCTION

Urinary Incontinence (UI) is a condition where the released urin cannot be controlled. Based on the type of UI, there are acute urinary incontinence and chronic urinary incontinence which consists of four types, namely Stress Urinary Incontinence (SUI), urge urinary incontinence/ sudden incontinence, *overflow* urinary incontinence type, and mixed type urinary incontinence¹⁻³. SUI is an inability to control urine discharge. This condition can occur if intravesical pressure is excessive compared to the pressure of the urethral closure and is associated with several conditions such as laughing, coughing

and other physical activities but not related with contractions in the bladder⁴⁻⁶. Results of the overall prevalence of UI in nulliparous women based on a review of 15 studies. The prevalence of UI ranges from 1% to 42.2% (Median: 20.1%). The prevalence of UI in the form of stress urinary incontinence (SUI) varies from 12.5% to 79% (Median: 49.4%)⁷. Among women with SUI, 77.5% reported the reported troublesome symptoms, and 28.8% reported their symptoms to be quite disturbing; the level of interference is associated with the severity of SUI^{8,9}.

Risk factors that play a role in the occurrence of SUI are age, obesity, history of labour, vacuum

extraction or forceps, history of SUI during pregnancy, episiotomy, spontaneous perineal rupture, phase II time, multiparity, estrogen deficiency, smoking, collagen disease and history of hysterectomy¹⁰⁻¹². The use of vacuum extraction increases the risk of SUI in the next five years. This is explained through its relation to laceration of the birth canal. But, when compared with forceps, the risk of vacuum extraction is lower for SUI. The use of forceps and vacuum extraction in labour lasting more than 60 minutes significantly increases the risk of SUI after the first delivery¹³.

Clinical findings with history and physical examination can predict the diagnosis of SUI with rational accuracy. Women who have symptoms of SUI with complaints alone have a diagnostic accuracy of 64% -90% when compared with the urodynamic test as the gold standard. Of these patients, 10% - 30% are found to have symptoms of detrusor instability (alone or together with SUI). Rare events that can cause SUI symptoms are urethral diverticulum, genitourinary fistula, ectopic ureter, and urethral instability¹⁴. Clinics must recognize occurred clinical situations that diagnoses SUI based solely on clinical symptoms still have a range of uncertainties. A urodynamic test is performed when the diagnosis is doubtful, for diagnostic confirmation, and the patient will undergo a surgical therapy process. This is justification because of research shows low morbidity and cost reasons¹⁴.

When counselling needs to be traced, it begins with complaints of a history of urination due to activity. In the history of uncontrolled urine output, information that must be extracted must include symptoms of storage and voiding, the impact of SUI on the quality of daily life, the extent of SUI, and post-treatment improvement¹⁵. Some supporting examinations are needed, among others^{16,17}. Urinalysis for infection, evaluation must also include urinalysis and culture. Urinary tract infections can cause urinary incontinence, although urge incontinence is more frequent than stress incontinence, cystometry is a bladder filling test and its storage function and urodynamic multichannel to examine urethral function, bladder capacity and stability, and urinary function are not indicated before the initiation of treatment of the bladder and its storage function and multichannel urodynamic to check urethral

function, capacity and stability of the bladder, and the function of urinary incontinence is not indicated before the initiation of treatment in stress urinary incontinence.

However, urodynamic examinations are often recommended before surgical interventions to support the diagnosis of stress leaks without bladder contractions for documentation of micturial function. Assessment of post-saline urinary stress can be assessed using a Questionnaire for Urinary Incontinence Diagnosis (QUID) developed in 2010. QUID is a questionnaire consisting of 6 questions to distinguish urinary stress incontinence. This questionnaire was created through a series of processes of literature review, clinical review, expert opinion and screening in patients. QUID is a valid questionnaire in establishing the diagnosis of urinary incontinence. QUID is proven to be consistent, valid, and can assess the progress of therapy. QUID includes the presence and frequency of IU symptoms of stress type and urgency type^{16,17}.

Scores > 4 on examination of urinary incontinence stress index indicate a diagnosis of urinary incontinence by 80%, while values > 6 on urge incontinence index indicate the same degree of diagnostic accuracy¹⁸. Previous research states that the proportion of SUIs has decreased in normal labour, but has increased in labour with vacuum extraction¹⁹. The risk of SUI is significantly higher after vaginal delivery using vacuum extraction compared to spontaneous labor²⁰. The incidence of SUI in vacuum extraction labour was greater (32.2%) than in normal vaginal delivery (11.9%). This illustrates that the incidence of SUI is higher in vaginal labour with vacuum extraction than in normal labor¹⁹.

There is no significant difference in the incidence of urinary incontinence in normal labour and vacuum extraction ($p > 0.05$)²¹. There was no significant difference in the incidence of stress urinary incontinence in normal labour, vacuum extraction and forceps ($p > 0.05$)^{22,23}. Based on previous research that has been described, there is still a controversial relationship between the occurrence of stress urinary incontinence in normal labour and vacuum extraction.

METHODS

This study used a cross sectional comparative study design. The research was carried out in the Obstetrics and Gynecology Department of the General Hospital Dr. M. Djamil, network hospital (M. Zein Painan Hospital, Prof. Hanafiah Batusangkar Hospital, Solok District Hospital, Padang Panjang Hospital and Achmad Muchtar Bukittinggi Hospital) and Public health center in Padang City (Padang Pasir, Seberang Padang, Lubuk Buaya, Ikur Koto, Air Dingin, Bungus, Pauh and Nanggalo).

The study was conducted from October 2018 to March 2019. The population of this study were all postpartum women with normal deliveries and vacuum extraction who were treated at RSUP Dr. M. Djamil Padang and networks hospital. The sampling technique in this study was Consecutive Sampling, which is a postpartum woman with normal delivery and vacuum extraction treated and met the inclusion criteria, with a total sample

of 31 people. Data analysis was performed univariately and bivariate using Pearson correlation tests. If a p-value <0.05 was found to be statistically significant. Data were analyzed using the SPSS 21.0

RESULTS

Subject Characteristics

Table 1. Frequency Distribution of Incidence of Stress Urinary Incontinence Postpartum in Normal and Vacuum Extraction

Method of Normal Delivery	Stress Urinary Incontinence (SUI)	
	SUI (n = 60) (f /%)	Normal (n = 44) (f /%)
Vacuum Extraction	50 (83.3)	8 (18.2)
Normal	10 (16.7)	36 (81.8)
Total	60 (100.0)	44 (100.0)

Most urine incontinence in subjects with vacuum extraction is 83.3% compared to 16.7% normal labor. The results of the SUI assessment are based on The Questionnaire for female Urinary Incontinence Diagnosis (QUID) in extraction vacuum.

Table 2. Stress Urinary Incontinence Assessed according to the Questionnaire for Female Urinary Incontinence Diagnosis(QUID) on Vacuum Extraction

	No	Rarely	Once a day	Frequently	Always	Every time
Urinating (even small droplets), which wet pads or underwear in						
Sneezing or coughing	10 (17.2)	25 (43.1)	15 (25.9)	8 (13.8)	0	0
Bending or lifting something	24 (41.4)	16 (27.6)	10 (17.2)	8 (13.8)	0	0
Exercising, brisk walking and jogging	25 (43.1)	21 (36.2)	7 (12.1)	5 (8.6)	0	0
Using the toilet and taking off your pants	24 (41.4)	20 (34.5)	10 (17.2)	4 (6.9)	0	0
Having a strong and uncomfortable urge to urinate (even small drops) which results in wet underwear before reaching the toilet	2 (3.4)	23 (39.7)	20 (34.5)	13 (22.4)	0	0
Rush to the toilet because of a strong desire to urinate	1 (1.7)	21 (36.2)	24 (41.4)	12 (20.7)	0	0

Interpretation: in wet underwear before reaching the toilet is 22.4%, rushed to the toilet because of a strong desire to urinate that is 20.7%, issued urine even small drops when coughing or sneezing and bending or lifting something each 13.8%, when walking fast, jogging or exercising is 8.6% and when using the toilet and removing pants is 6.9%.

Table 3. Stress Incontinence Urine Assessed According to the Questionnaire for Female Urinary Incontinence Diagnosis (QUID) in Normal Delivery

	No	Rarely	Once a day	Frequently	Always	Every time
Urinating (even small drops), which wet pads or underwear in						
Sneezing or coughing	26 (56.5)	20 (43.5)	0	0	0	0
Bending or lifting something	26 (56.5)	20 (43.5)	0	0	0	0
Exercising, brisk walking and jogging	45 (97.8)	1 (2.2)	0	0	0	0
Using the toilet and taking off your pants	35 (76.1)	11 (23.9)	0	0	0	0
Have a strong and uncomfortable urge to urinate (even small drops) which results in wet underwear before reaching the toilet	15 (32.6)	27 (58.7)	4 (8.7)	0	0	0
Hurried to the toilet because of a strong desire to urinate	7 (15.2)	26 (56.5)	13 (28.3)	0	0	0

Interpretation: most gravidity status of subjects are multiple.

Table 4. Relationship of Normal Labor and Vacuum Extraction Methods with Stress Urinary Incontinence Postpartum

Type of labour	Urinary Stress Incontinence (SUI)		POR (95% CI)	P-value
	SUI (n = 60) (f /%)	Normal (n = 44) (f /%)		
Vacuum Extraction	50 (83.3)	8 (18.2)	22.5 (8.1-62.6)	<0.001
Normal	10 (16.7)	36 (81.8)		
Total	60 (100.0)	44 (100.0)		

Interpretation: the results of statistical tests with chi-square there is a significant relationship between the way of normal delivery and vacuum extraction with stress urinary incontinence after delivery

DISCUSSION

The results of the study found that the incidence of stress urinary incontinence was more in the study subjects with vacuum extraction which was 83.3% compared to 16.7% of normal labour. Previous research states that the proportion of SUIs has decreased in normal deliveries, but increased in labour with vacuum extraction¹⁹. The risk of SUI is significantly higher after vaginal delivery using vacuum extraction compared to spontaneous labor¹⁹. The incidence of SUI in vacuum extraction labour is greater (32.2%) than in normal vaginal delivery (11.9%). This illustrates that the incidence of SUI is higher in vaginal labour with vacuum extraction than in normal labour. The risk of vaginal delivery with vacuum extraction compared to normal delivery for SUI is 2.71, meaning that patients with vacuum extraction have a 2.71 times chance of experiencing SUI compared to normal labor²⁰.

In the study results it is known that the percentage of SUI is higher in labour with vacuum extraction (83.3%) compared to normal labour (16.7%). Based on the results of statistical tests with *chi-square* there is a significant relationship

between the way of normal delivery and vacuum extraction with stress urinary incontinence after delivery with $p = <0.001$ ($p <0.05$), *prevalence odds ratio* (POR), 22.5, meaning that subjects with vacuum extraction have a 22.5 times chance of experiencing SUI compared to normal labour. If seen the risk factors that play a role in the occurrence of SUI related to demographics are gestational age where the older the woman's gestational age the higher the risk of SUI. Data from West Sumatra Province shows that the average age of a woman's pregnancy in West Sumatra is 24.6 years with the lowest gestational age range is 16 years and the highest is 44 years, in theory, the age group > 35 years will experience SUI with a proportion of 10.25%. Another factor of SUI is maternal obesity, based on provinces in Indonesia the prevalence of obesity in women in West Sumatra Province in 2013 was 13.46%, this could illustrate the risk of SUI will increase through the amount of obesity in mothers in West Sumatra. This demographic factor can be a supporter of SUI caused by the mode of delivery.

Some studies show a higher prevalence of SUI in women younger than 60 years and urge type urinary incontinence in older women, suggesting

that the type of incontinence can vary with age. Reports that between 17% and 55% of elderly women have experienced urinary incontinence, compared with younger women 12-42%. The incidence of SUI is strongly associated with increasing age especially it was confirmed only in young and middle-aged women^{24,25}. Women over 40 years had a ratio of 2.18 times having SUI compared to women less than 40 years of age 40.

CONCLUSION

Research concludes there is a relationship between normal labour and vacuum extraction with stress urinary incontinence after delivery in the province of West Sumatra.

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