

Research Article

Parity and Duration of Labor Affects the Risk of Urinary Retention in post C-Section Patients

Paritas dan Lama Persalinan mempengaruhi Risiko Retensi Urin pada Pasien Pasca Seksio Sesarea

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Abstract

Objective: To determine the rate of urinary retention cases and contributing risk factors in Department of Obstetrics and Gynecology Dr. Mohammad Hoesin Hospital (RSMH), Palembang.

Methods: The study conducted on 111 patients who met our study criteria. After CS, urinary catheter were inserted for 24 hours, and then it was opened for 6 hour, after that patients were asked to urinate spontaneously, then we examined the residual urine volume with transvaginal ultrasound. If residual urine volume post CS was >200 ml, it categorized as urinary retention.

Result: During the follow up we found that the rate of urinary retention after CS was 3.6% (4 subject). All subject has a covert urinary retention. Factors contribute to post CS urinary retention was duration of labor and parity. The mean of labor duration in group with urinary retention is 8.75±13.04 hour, and 7.55±7.28 hour in the normal group ($p = 0.003$ RP= 106.00 CI 95%= 6.587-1705.778). All case with urinary retention were primipara ($p = 0.045$).

Conclusion: Our study found that the rate of post CS urinary retention was 3.6%. Risk factors for post CS urinary retention were duration of labor more than 24 hours and primipara.

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Keyword: caesarean section, residual urine, urinary retention

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Abstrak

Tujuan: Untuk mengetahui angka kejadian retensio urin pascaseksio sesarea dan faktor-faktor yang mempengaruhinya di Bagian Obstetri Ginekologi RSMH Palembang.

Metode: Sebanyak seratus sebelas pasien yang memenuhi kriteria diikutkan dalam penelitian ini. Setelah pasien menjalani tindakan seksio sesarea dilakukan pemasangan kateter selama 24 jam, setelah kateter dibuka 6 jam kemudian pasien diminta untuk berkemih spontan, kemudian dilakukan pemeriksaan volume urin sisa dengan menggunakan USG transvaginal. Apabila volume urin sisa >200 ml, pasien dikategorikan mengalami retensio urin.

Hasil: Dari hasil penelitian didapatkan angka kejadian retensio urin pascaseksio sesarea sebesar 3,6% (4 subjek). Semua subjek tergolong jenis retensio urin terselubung (covert urinary retention). Faktor risiko yang berhubungan dengan kejadian retensio urin pascaseksio sesarea adalah lama persalinan dan paritas. Rerata lama persalinan yang menderita retensio urin 8,75±13,04 jam, sedangkan pada subjek yang tidak mengalami retensio urin 7,55±7,28 jam ($p = 0,003$ RP= 106,00 CI 95%= 6,587-1705,778). Semua kejadian retensio urin terjadi pada primiparitas ($p = 0,045$).

Kesimpulan: Dari hasil penelitian didapatkan angka kejadian retensio urin pascaseksio sesarea sebesar (3,6%). Faktor risiko yang berhubungan dengan kejadian retensio urin pascaseksio sesarea adalah lama persalinan lebih dari 24 jam dan primiparitas.

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Kata kunci: residual urin, retensio urin, seksio sesarea

INTRODUCTION

Post partum urinary retention was one of complication of abdominal or vaginal delivery. Urinary retention is an inability to urinate spontaneously in the first 6 hours after vaginal delivery or 6 hours after urinary catheter is removed in C-section (CS) with residual urine volume >200 ml.¹

Prevalence of urinary retention varied from 1.7% to 17.9%, but most of it was taken from urinary retention after vaginal delivery, urinary reten-

tion after CS delivery has not widely studied.² In a study of post CS urinary retention in RSCM conducted by Kartono H (1998), the rate of post CS urinary retention was 7.1% after 24 hours of urinary catheter insertion.³

Some pathophysiology underlying urinary retention, it included hormonal changes during pregnancy which decreasing smooth muscle tonus including urinary vesicles and its capacity start to increase at the third month of pregnancy. After labor, urinary ves-

icles tend to be hypotonic for a couple of days to week. During labor, urinary vesicles can be injured due to trauma in nerve, pelvic muscles, and urinary vesicles muscle, and these can be risk factors contributing to post CS urinary retention. Risk of post SC urinary retention was higher because: first, indication that underlying CS usually prolonged labor, history of CS with adhesions of urinary vesicles with lower segment of uterus. Second, CS itself causes bruising and edema of the bladder near the uterovesical area, traumatic of urinary vesicles on intraoperative (the rate was 0.14-0.31%). Finally, immobilization post surgery, wound pain and lack of privacy increased the risk of urinary retention.⁴⁻⁶

Post CS urinary retention cause uncomfortable feeling for the patient especially during insertion of urinary catheter and increase risk of infection.⁷ Rate of persistent urinary retention after delivery was 0.05%, some risk factors including duration of second stage of labor, epidural analgesia, and delayed of diagnoses and intervention.^{8,9}

In this study, we aimed to examine the prevalence of post CS urinary and estimate the relationship of risk factors including maternal age, parity, indication of CS, number of previous CS, adhesions of urinary vesicles during CS, opening plicavesicouterine, type of abdominal incision and birthweight with post CS urinary retention in Department of Obstetrics and Gynecology in Dr. Moehammad Hoesin Hospital (RSMH).

METHODS

This was an observational analytical study with cross sectional methods. This study was conducted in Department of Obstetrics and Gynecology RSMH Palembang from September 2011 to March 2012. Our study participants were woman who underwent CS in Department of Obstetrics and Gynecology RSMH Palembang who met our inclusions criteria and taken by consecutive sampling. We estimated the sample size to be 111 subjects, at minimum.

Inclusions criteria of this study included women who underwent CS with LSCS technique (lower segment caesarean section) under spinal analgesia in Department of Obstetrics and Gynecology RSMH Palembang, agreed to participate in this study and signed the informed consent. Exclusions criteria of this study including history of prior urinate disorder, history of diabetes mellitus, and severe anemia.

Withdrawal criteria were using catheter more than 24 hours after CS, post partum hemorrhage, neglected labour and poor general condition. After CS, catheter Fr 16 transutera was inserted and left for 24 hours. After 6 hours the catheter was removed, patient was asked to urinate spontaneously and then examined by the clinician.

The residual urine volume was assessed with transvaginal ultrasonography. Examination was performed in fetomaternal ultrasonography room using ALOKA SM 3500 product.

This was an non-invasive and low risk methods to examine the residual urine volume. The examination were performed with the patient lying on a bed and her back was supported with a pillow, then the depth and height of uterine vesicles were measured and calculated using Haylen formula:^{10,11} $PVR (ml) = (5.9 \times H \times D) - 14.6H$ was horizontal axis (superoinferior) of maximum diameter of urinary vesicles; D was vertical axis (posteroanterior) of urinary vesicles. Urinary retention is defined as residual urine of more than 200 ml.

Each subject data was recorded in a form and collected into one main table. Data tabulation was conducted based on the objective of this study, and analyzed using statistic software (SPSS version 16.0). Data analysis was conducted based on type of the data, and data distribution. Fisher's exact test was used to analyze categorical data and independent t test.

RESULT

A total of 111 patients were analyzed in this study. General characteristic of subjects was shown in Table 1. Urinary retention rate was 3.6% (4 subjects) and 96.4% (107 subjects) was not having urinary retention (normal). Mean of maternal age of woman with urinary retention was 24.50 ± 5.97 years, and 29.36 ± 6.40 years in normal subject. In this study, mostly urinary retention group's education level was senior high school 6 (86.%), and its similar to normal group (50%). Mostly subject lived in the city 76 (68.5%), and not working (house wife) 100 (90.1%), so does in urinary retention group, all of the subjects were not working (100%). In this study mostly the subjects were multipara (53%, 59 subjects) and primipara 46.8% (52 subjects). All of subjects in urinary retention group were primipara, the differences of post CS urinary retention between parity groups was statistically significant ($p = 0.045$).

Table 1. Basic Characteristics

	Urinary Retention	Normal	
Maternal Age			
< 20 and > 35	1 (25%)	26 (24.3%)	$p = 0.678$
20 - 35	3 (75%)	81 (75.7%)	RP = 1.038
Education			
Elementary school	1 (25%)	1 (0.9%)	CI 95% = 0.104-10.419
Junior high school	1 (25%)	12 (11.2%)	
Senior high school	2 (50%)	94 (87.9%)	
Address			
City	2 (50%)	74 (69.2%)	
Country	2 (50%)	33 (30.8%)	
Job			
Housewife	4 (100%)	96 (89.7%)	
Private employee	0 (0%)	6 (5.6%)	
Farmer Merchant	0 (0%)	3 (2.8%)	
Parity	0 (0%)	2 (1.9%)	
Primipara	4 (100%)	48 (44.9%)	
Multipara	0 (0%)	59 (55.1%)	$p = 0.045$

Table 2. Risk factors of Post CS Urinary Retention.

	Urinary Retention	Normal	
History of CS			
Yes	0 (0.0%)	15 (14.0%)	$p = 0.555$
No	4 (100%)	92 (86.0%)	
Type of CS			
Electiv	0 (0.0%)	3 (2.8%)	$p = 0.895$
Emergency	4 (100%)	104 (97.2%)	
Opening plica vesico uterine			
Yes	0 (0.0%)	48 (44.9%)	$p = 0.099$
No	4 (100%)	59 (55.1%)	
Type of abdominal incision			
Pfannenstiel	3 (75%)	37 (34.6%)	$p = 0.132$
Mediana	1 (25%)	70 (65.4%)	RP = 5.676
CI 95% = 0.57-56.49			
Duration of Labor			
> 24	2 (50%)	1 (0.9%)	$p = 0.003$
0 - 24	2 (50%)	106 (99.1%)	RP = 106.00
CI 95% = 6.587-1705.778			
Birth weight			
= 4000	3 (75%)	102 (95.3%)	$p = 0.202$
> 4000	1 (25%)	5 (4.7%)	

Table 2 show risk factors of post CS urinary retention. Urinary retention happened post CS was indicated by uterine inertia, transversal position, oligohydramnion, and intrapartum infection, 1 subject for each indication. In this study, urinary retention also occurred in subjects who had no history of prior CS, emergency CS, and having non-opening plika vesicouterine technique performed. There was a statistical significance differences between. CS technique and post CS urinary retention. ($p = 0.099$).

Urinary retention mostly occurred in pfannenstiel abdominal incision (3 subjects, 75%), and the differences with the occurrence in mediana incision was statistically significant ($p = 0.132$). Mean of labor duration in urinary retention group was 8.75 ± 13.04 and 7.55 ± 7.28 in normal group. Only 3 subjects had labor duration more than 24 hours (66.7%), and two of them suffered urinary retention. The difference of labor duration between two groups was statistically significant ($p = 0.003$), with prevalence ratio of 106. It showed that subjects with duration of labor more than 24 hours was at risk of urinary retention 106 times higher than subjects with duration of labor less than 24 hours. Birth weight was dominant in = 4000 grams group (94.6%, 105 subjects). The differences between-birth weight was statistically significant ($p = 0.202$).

DISCUSSION

This study showed that rate of post CS urinary retention was 3.6%. All of these case was covert urinary retention because patients did not report any discomfort during urinate. Our result is contradicted with the result of Yip SK's study, which found that post CS urinary retention case was 9.7% covert and 4.9% overt.⁴ Kartono reported that incidence of post CS urinary retention was 17.1% in 6 hours catheter and 7.1% in 24 hours catheter. This distinction may happen because there was no uniform criteria to examine urinary retention.^{2,3,12} Urinary retention occurred in 4 subjects, all of these case was covert type and urine residual was <500 ml, based on urinary retention management protocol with residual urine <500 ml, intermittent urinary catheter was inserted. After 1 intermittent urinary catheter insertion, all subjects could urinate without any complain and residual urine was <200 ml.

Risk factors correlated with post CS urinary retention were duration of labor, parity, maternal age, history of prior CS, opening plikavesicouterine, and type of abdominal incision was not statistically significant with post CS urinary retention.

Chai AH reported that the most common cause of urinary retention based on CS indication was obstructed labor ($p = 0.001$). Kekre AN also reported that there is a significant differences between risk of urinary retention with duration of labor ($p < 0.001$). Obstructed or long duration of labor usually traumatized lower urinary tractus and pelvic nerve, these lead to urinary retention. Long duration of labor would cause perineal oedema, so it would be harder for patient to urinate.^{4,13}

In this study urinary retention occurred in primipara, it may happen because usually labor duration was longer than multipara. However, Chai AH found there was no differences between multi or primipara in the urinary retention event.⁵ This result was similar to Liang, his study showed that there was no significant difference between primi and multipara in the urinary retention event ($p = 0.19$).^{4,8}

CONCLUSION

The rate of post CS urinary retention in this study was 3.6%. All urinary retention cases in this study were covert urinary retention. Risk factors correlated to post CS urinary retention were duration of labor and parity. Meanwhile, maternal age, history of prior CS, the act of opening plikavesicouterine, and the type of abdominal incision was not statistically significant with post CS urinary retention.

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