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Clinical Research

Incidence of postoperative urinary retention after pelvic organ prolapse surgery in Cipto Mangunkusumo National General Hospital

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Abstrak

Latar belakang: *Setelah persalinan pervagina 50% perempuan berisiko untuk terjadi prolaps organ panggul (POP). Seorang perempuan mempunyai risiko seumur hidup sebesar 11% untuk menjalani operasi prolaps organ panggul. Insidens retensi urin pasca-operasi (POUR) POP sebesar 2%-43%. Penelitian ini bertujuan mengetahui angka POUR setelah operasi POP di Rumah Sakit Umum Pusat Cipto Mangunkusumo (RSCM) dan faktor-faktor yang mempengaruhinya.*

Metode: *Data sekunder dari rekam medis 124 wanita yang menjalani operasi POP periode 2010-2013. Angka POUR dan faktor-faktor risiko dianalisis univariat dan bivariat menggunakan uji* chi-square *atau alternatifnya, menggunakan SPSS 20.0. Variabel independen: usia, indeks massa tubuh (IMT), paritas, derajat prolaps, jenis operasi, anestesi, benang, jumlah perdarahan intraoperatif dan durasi operasi. POUR didefinisikan sebagai volume residu urin > 100 cc.*

Hasil: *Angka retensio urin pasca-operasi POP di RSCM 29%. Tidak terdapat hubungan antara usia, IMT, paritas, derajat prolaps, jenis operasi, anestesi, benang, jumlah perdarahan intraoperatif dan durasi operasi dengan kejadian retensio urin pasca-operasi prolaps organ panggul.*

Kesimpulan: *Angka kejadian retensio urin pasca-operasi prolaps organ panggul di RSCM adalah 29%. Tidak terdapat hubungan antara faktor risiko dengan retensi urin pasca-operasi prolaps organ panggul.*

Abstract

Background: After vaginal delivery, every woman has 50% risk for pelvic organ prolapse (POP). The lifetime risk for a woman to undergo surgical treatment for POP was 11%, with the incidence of postoperative urinary retention (POUR) after POP surgery of 2%-43%. The aim of our study is to identify the incidence of POUR after POP surgery in Cipto Mangunkusumo National General Hospital (RSCM) and the risk factors.

Methods: Medical records of 124 women undergoing pelvic prolapse surgery between 2010 and 2013 were analyzed. The incidence of POUR and the risk factors were identified by performing univariate and bivariate analysis using chi-Square test and its alternative with using SPSS 20.0. Independent variables include age, body mass index (BMI), parity, degree of prolapse, type of surgery technique, type of anesthesia, type of suture material, amount of intra-operative blood loss, and duration of surgery. POUR defined as urine residual volume more than 100cc.

Results: The incidence of urinary retention after pelvic prolapse surgery was 29%. There was no correlation between age, BMI, parity, degree of prolapse, type of surgery technique, anesthesia, suture, intra-operative blood loss, duration of surgery, and the occurrence of urinary retention after pelvic organ prolapse surgery.

Conclusion: The incidence of urinary retention after pelvic organ prolapse surgery was 29%. There was no correlation between the risk factors and the occurrence of urinary retention after pelvic organ prolapse surgery.

Keywords: urinary retention, POUR, pelvic organ prolapse, POP

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After vaginal delivery, every woman has 50% risk for pelvic organ prolapse (POP) for life.[1] POP can cause physical symptoms (uncomfortable feelings, organ bulging and fullness) and functional symptoms (voiding symptoms, defecation symptoms, sexual function) which may reduce the quality of life. Management of POP can be done conservatively or surgically, depending on degree of prolapsed, symptoms and progression of disease. However, surgical treatment is the definitive treatment for POP. The lifetime risk for a woman to undergo surgical treatment for POP was 11%.[2]

There are various types of surgical methods to treat POP, and selection of proper methods depends on the patient's conditions. However, every medical procedure have risk of complications. The possible complication that often occur is urinary retention.[3,4] Incidence of postoperative urinary retention (POUR) after POP surgery was 2%-43%.[5] This wide range of incidence due to various criteria to define POUR.[3,6] In general urinary retention is temporary. Hence, this condition can decrease patient's quality of life (QoL), increase risk of infection because the usage of urinary catheter and also make longer hospital stay.[3,7]

POUR is defined as the inability to void when bladder is full. The risk factors for POUR are age, surgical technique, amount of bleeding while surgery and degree of POP. The factors that often been studied were anesthetic type and length of surgery.[3]

At Cipto Mangunkusumo National General Hospital (RSCM), there is no study about incidence of POUR after POP surgery up to now. The aim of this study was to identify the incidence of POUR and risk factors after POP surgery. The factors that were analyzed include patient's characteristics such as age and parity, body mass index (BMI), degree of prolapse, type of surgery, type of anesthesia, type of suture material, amount of intra-operative bleeding and duration of surgery.

METHODS

Medical records of women undergoing pelvic organ prolapsed surgery during periode 2010-2013 were analyzed. The aim of study was to identify independent risk factors for POUR which were age, parity, BMI, degree of prolapsed, type of surgery technique, type of anesthesia, type of suture material, amount of intra-operative blood loss, and duration of surgery, which will be identified by univariate and bivariate analyzes using chi-square analyzes and its alternate analyzes. The predictor that independently relate with the outcome or urinary retention proved by p-value less than 0.05 ($p < 0.05$) using SPSS version 20.0.

The inclusion criteria was women undergoing POP surgery. The exclusion criteria were women with history of urinary retention before surgery, pre-operation urinary tract infection, bladder injury and incomplete data.

RESULTS

During the study period, between years 2010-2013, we found 135 subjects undergoing pelvic organ prolapse surgery. Total 11 subjects were excluded, 3 subjects because of bladder injury, 3 subjects because of urinary retention before POP surgery, 3 subjects because of pre-operative urinary tract infection and 2 subjects because of incomplete data. Total 124 subjects were included in this study, and 29% (n = 36) subjects had POUR. We found 5.6% (n = 7) subjects need urinary catheterization more than 72 hours. One patient (0.8%) needed longer urinary catheterization, about 312 hours. Two subjects (1.6%) need intermittent catheterization. One month after surgery there was no subjects who have post-void residual (PVR) more than 100 mL. The median time for recovery from POUR (n = 36) was 1 day or 24 hours (range 6-312 hours). The median PVR for all groups were 50 mL (range 0-800 mL). In group without POUR after POP surgery the mean PVR was 38 mL (range 0-90 mL) and in group with POUR was 267 mL (range 110-800 mL).

Thirty five percent subjects were woman with age 50-60 year old. About 39.5% subjects classified as obese based on BMI, and 83.9% subjects have more than three children. In this study most of the subjects (61.3%) have 3rd and 4th degree uterus prolapse, 71% have 3rd and 4th degree cystocele, 52.4% have 1st and 2nd degree rectocele. The most common surgical procedure was posterior colporrhaphy, about 85.5% and most of the subjects (87.9%) had spinal anesthesia. The most common surgical suture in this study was polyglycolic acid (PGA), about 89.5% and more than half (53.2%) underwent surgery for 60-120 minutes. For statistical analyses purpose, multiple variables will be combined into two variables.

Based on statistical analyses, in this study we found that there was no association between age, BMI, parity and POUR after POP surgery (Table 1). Table 2 showed that there was no association between the degree of uterus prolapse, degree of upper vagina prolapse, degree of cystocele, degree of rectocele and POUR after POP surgery. Table 3 showed that in this study there was no association between type of surgical procedure and POUR after POP surgery. Table 4 showed there was no association between type of anesthesia, type of suture material, intra-operative bleeding, duration of surgery and POUR after POP surgery.

Table 1. Distribution of urinary retention incidence based on subject characteristic

Characteristic	Urinary retention		Total n (%)	p
	Yes n (%)	No n (%)		
Age				0.768
< 60	17 (30.4)	39 (69.6)	56 (100)	
≥ 60	19 (27.9)	49 (72.1)	68 (100)	
BMI				0.529
Under-normal	14 (32.6)	29 (67.4)	43 (100)	
Over-obese	22 (27.2)	59 (72.8)	81 (100)	
Parity				0.331
P < 3	4 (20)	16 (80)	20 (100)	
P ≥ 3	32 (30.8)	72 (69.2)	104 (100)	

Table 2. Distribution of urinary retention based on degree of prolapse

Degree of prolaps	n	Urinary retention		Total n (%)	p
		Yes n (%)	No n (%)		
Uterus prolapse	114				0.772
Low (1 & 2)		12 (31.6)	26 (68.4)	38 (100)	
High (3 & 4)		22 (28.9)	54 (71.1)	76 (100)	
Upper vagina prolapse	7				0.286
Low (1 & 2)		0 (0)	5 (100)	5 (100)	
High (3 & 4)		1 (50)	1 (50)	2 (100)	
Cystocele	122				0.498
Low (1 & 2)		8 (23.5)	26 (76.5)	34 (100)	
High (3 & 4)		27 (30.7)	61 (69.3)	88 (100)	
Rectocele	117				0.051
Low (1 & 2)		25 (38.5)	40 (61.5)	65 (100)	
High (3 & 4)		10 (19.2)	42 (80.8)	52 (100)	

Table 3. Distribution of urinary retention based surgical procedure

Type of surgical procedure	Urinary retention		Total n (%)	p
	Yes n (%)	No n (%)		
Total vaginal hysterectomy				0.792
Yes	30 (28.6)	75 (71.4)	105 (100)	
No	6 (31.6)	13 (68.4)	19 (100)	
Anterior colporrhapy				0.167
Yes	33 (31.4)	72 (74.6)	105 (100)	
No	3 (15.8)	16 (84.2)	19 (100)	
Posterior colporrhaphy				0.211
Yes	33 (31.1)	73 (68.9)	106 (100)	
No	3 (16.7)	15 (83.3)	18 (100)	
Sacrospinous fixation				0.748
Yes	10 (31.2)	22 (68.8)	32 (100)	
No	26 (28.3)	66 (71.7)	92 (100)	
Colpocleisis				0.628
Yes	6 (25)	18 (75)	24 (100)	
No	30 (30)	70 (70)	100 (100)	
Culdoplasty				0.627
Yes	2 (40)	3 (60)	5 (100)	
No	34 (28.6)	85 (71.4)	119 (100)	
Levatorplasty				1.000
Yes	1 (25)	3 (75)	4 (100)	
No	35 (29.2)	85 (70.8)	120 (100)	
Transobturator-tension free vaginal tape				0.196
Yes	0 (0.0)	4 (100)	4 (100)	
No	36 (30)	84 (70)	120 (100)	

Table 4. Distribution of urinary retention based operative parameter

Operative parameter	Urinary retention		Total n (%)	p
	Yes n (%)	No n (%)		
Anesthesia				0.445
Spinal	35 (30.4)	80 (69.6)	115 (100)	
General - epidural	1 (11.1)	8 (88.9)	9 (100)	
Surgical sutures				0.052
PGA	29 (26.1)	82 (73.9)	111 (100)	
Chromic	7 (53.8)	6 (46.2)	13 (100)	
Intra-operative bleeding				1.000
< 100 cc	5 (29.4)	12 (70.6)	17 (100)	
≥ 100 cc	31 (29)	76 (71)	107 (100)	
Duration				0.073
< 60 minutes	3 (75)	1 (25)	4 (100)	
≥ 60 minutes	33 (27.5)	87 (72.5)	120 (100)	

DISCCUSION

In this study we found the incidence of POUR after POP surgery at RSCM was 29%. This results was in accordance with study done by Hakvoorth[3] in 2009, that also showed incidence of POUR after POP surgery of 29%. Dicker, et al[8] also state the same incidence for POUR after POP surgery. Whereas Sokol, et al[5] found the incidence for POUR after POP was 2%-43%. The result was different because of the multifactor etiologies for POUR and varies terms to define urinary retention and the cut off point for PRV.[6]

There was no association between age, BMI, parity, degree of prolapse, surgery procedures, type of anesthesia, type of suture materials, amount of intra-operative bleeding, duration of surgery and POUR after POP surgery in this study. It was different from previous studies that showed older age have association with POUR. Feliciano, et al[9] found that POUR was associated with the risk of over distention and permanent damage of detrusor muscle that resulted in voiding difficulty especially in elderly. Stegall, et al[10] stated that the risk of POUR increase in relation with surgical procedures, type of anesthesia and older age. Noepramana[11] found that age influenced voiding disturbance that related to menopause parallel with increasing of uroginecological problems. Other studies showed the relation with increased of age. Urogenital disorders may be worsened related to estrogen deficiency.[12-14] In our study almost all of the subjects were already in menopausal stage, this might be the reason why we didn't find difference in our age group.

There was also no association between BMI and POUR after POP surgery, This results are along with the study done by Mutone, et al.[15] Moss, et al[16] reported the success after surgery for patient with weight > 80 kg, but they didn't report any voiding disturbance related to body weight.

In this study, parity was not associated with POUR after POP surgery. Whereas, Kepenecki, et al[17] found that risk for urinary incontinence and other pelvic floor disorders was increase related to more parity, because of mechanic injury and neurovascular injury at pelvic floor. It was different with our study because we excluded subjects that have history of urinary retention and other voiding disfunction before surgery, which influenced the results of POUR after POP surgery.

From statistical analysis, we found that there was no association between degree of prolapse, surgical procedures, types of anesthesia, types of suture material, amount of intra-operative bleeding, duration of surgery with POUR after POP surgery. These results were along with Lakeman's study,[18] in which 17 women underwent urodynamic study one day after anterior colporrhaphy, and showed that anterior colporrhaphy didn't cause urinary tract obstruction. However, Lorzadeh, et al[19] stated that anterior colporrhaphy and posterior colporrhaphy was the most common cause of urinary retention. In the contrary, Hakvoort[3] in 2009 found that amount of intra-operative bleeding and higher degree of cystocele were risk factors for POUR. Baldini, et al[6] showed that general anesthesia more often caused POUR. In contrast, Wohlrab, et al[20] stated that regional anesthesia in midurethral sling technique can caused POUR. These controversial results are assumed to be due to difference in surgical procedure and type of anesthesia as well as to operator (surgeon) and anesthesiologist skill technique.

The limitation of this study was its retrospective design, in contrary to prospective study that allow investigator to collect more accurate and complete data. Hence, along with the study period all the risk factors were documented consistently. The strength of this study was the uniformity for catheterization, as showed by small number of subjects that had catheterization more than 24 hours. Until now, the cut off point for PVR is not define by International Continence Society, because variation in definition of PVR for POUR after POP surgery can directly influence the POUR incidence.[3] To avoid over treatment of patients with irrelevant urinary retention, we decided to use PVR >100 mL after 6 hours catheter removal in patients underwent POP surgery, according to RSCM guideline for gynecology case.[21] The results of this study can be used as baseline information of the incidence of POUR after POP surgery in RSCM, which can be use as work evaluation and reference for future study.

In conclusion, there was no association between risk factors and POUR after POP surgery. For future study, we recommend to do the study about risk factors of POUR after POP surgery prospectively.

Conflict of interest

The authors affirm no conflict of interest in this study.

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