Research Article

Prevalence and Characteristics of Pelvic Floor Dysfunction in a Tertiary Care Center in Indonesia

Prevalensi dan Karakteristik Disfungsi Organ Panggul di Pusat Pelayanan Kesehatan Tersier di Indonesia

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Abstract

Objective: To determine the prevalence and characteristics of pelvic floor dysfunction (PFD) in Jakarta, Indonesia.

Methods: A cross sectional study was conducted at gynecology, endocrinology, and urogynecology clinic of Dr. Cipto Mangunkusumo Hospital during the period from January 2016 to April 2016. Subjects were selected using consecutive sampling. Data were taken using research and POP-Q form.

Results: A total of 197 subjects were recruited. The prevalence of patients with PFD was 33%. The prevalence of POP, UI, and FI were 26.4%, 15.3% and 2.5%; respectively. Association between individual characteristics and PFD was found on women aged ≥ 60 and aged 40-59 years old with 69 and 14 times probability to be PFD. The probability of developing PFD was 76 and 14.2 times in multiparity and primiparity. Woman with vaginal delivery had a change to develop PFD 1.9 times and postmenopausal woman had a probability 18 times. The infuencing risk factor in PFD were age parity, race, mode of delivery, and menopausal status.

Conclusion: Pelvic floor dysfunction affects a substantial of women and increases with age, parity and aging.

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Keywords: fecal incontinence, pelvic floor dysfunction, pelvic organ prolapse, urinary incontinence

Abstrak

***Tujuan**: Untuk mengetahui prevalensi serta karakteristik yang berhubungan dengan DDP di Jakarta.*

***Metode**: Penelitian ini merupakan suatu studi potong lintang, dipilih secara konsekutif, berlangsung pada bulan Januari-April 2016 di poliklinik rawat jalan ginekologi, uroginekologi dan endokrinologi RSCM. Data diambil menggunakan form penelitian serta dilakukan pemeriksaan dasar panggul menggunakan formulir POP-Q.*

***Hasil**: Dari total 197 subjek, prevalensi pasien DDP di poliklinik rawat jalan RSUP Dr. Cipto Mangunkusumo didapatkan sebesar 33%. Prevalensi masing-masing kasus POP, IU dan IF adalah 26,4%; 15,3% serta 2,5%. Dilakukan penilaian hubungan antara masing-masing karakteristik dengan kejadian DDP didapatkan kelompok usia ≥ 60 tahun dan 40-59 tahun sebanyak 69 kali dan 14 kali; sebanyak 76 kali pada kelompok multiparitas dan 14,2 kali pada primiparitas. Kelompok perempuan dengan persalinan pervaginam mempunyai risiko 1,9 kali. Kelompok postmenopause mempunyai risiko sebesar 18 kali. Faktor risiko yang berhubungan dengan kejadian DDP adalah usia, paritas, suku, cara persalinan dan status menopause.*

***Kesimpulan**: Disfungsi dasar panggul mempunyai pengaruh cukup besar terhadap perempuan dan meningkat sejalan dengan usia, paritas serta penuaan.*

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***Kata kunci**: disfungsi dasar panggul, inkontinensia fekal, inkontinensia urin, prolaps organ panggul*

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INTRODUCTION

Pelvic floor dysfunction (PFD) affects daily activities and decreases quality of life. The increasing prevalence of PFD corresponds to the enhancement of population growth, influencing the number of elderly worldwide. Greater participation of older women in the society is an important factor for improving quality of life.[1] Pelvic floor dysfunction contributes to material loss for the country, especially in the health care system.

According to the National Health and Nutritional Examination Survey (NHANES) in USA, the prevalence of PFD was 23.7% in 2008.[2] Meanwhile, Wu, et al.[3] found an increased prevalence into 25% in 2014. PFD was found higher in older population and tended to relapse.[4] Several risk factors found related to PFD were female, age, parity, and instrumental delivery.[5]

PFD consists of pelvic organ prolapse (POP), urinary incontinence (UI), and fecal incontinence

(FI).[6] POP is the most common condition in elder women and the incidence reached 39.8%. Several risk factors contributing to this condition include age above 70 years old, having given birth more than three times, and menopause.[7] For the UI, the prevalence ranged from 9.9% to 45%. Multiple vaginal deliveries, multiparity, menopause, obesity, and previous history of hysterectomy increase the risk of developing UI.[8,9] FI is defined as the inability to control bowel movements, making the stools to leak unexpectedly from the rectum.[10] Advancaged age, obesity, educational background, UI, multiparity, menopause, previous history of POP surgery, previous history of hysterectomy, urgency, diarrhea, constipation increase the risk of developing FI.[11] This study was aimed to determine the prevalence and characteristics of PFD.

METHODS

This was a cross sectional study. Data were obtained by recruiting the PFD cases directly through consecutive sampling at the Women's Health Clinic of Dr. Cipto Mangunkusumo Hospital (RSCM) including gynecology, urogynecology, and endocrinology clinic during the period from January to April 2016. Subjects were women diagnosed with PFD who went to the Women's Health Clinic. Oncologic patients were excluded from this study.

PFD is defined as the weak of pelvic floor caused by the weakening of muscle fucntion and pelvic floor fascia. It includes POP, UI, FI. POP is defined as a condition when a pelvic organ such as bladder (cystocele), uterine (uterine prolapse), vagina (vaginal prolapse), or rectum (rectocele) drops from its normal place to lower abdomen and pushes against the wall of vagina. PFD was diagnosed using Pelvic Organ Prolapse Quantification System (POP-Q) continued with physical examination. We classified the subjects' BMI according to the WHO classifications. The classification is as follows: underweight (BMI < 18.5 kg/m^2), normal weight (BMI 18.5-24.9 kg/m^2), overweight (BMI 25.29.9 kg/m^2) and obese (BMI ≥ 30 kg/m^2).

Categorical variables were analyzed using the Chi-Square test or Fisher's exact test. The linearity of continuous variables were analyzed using logistic regression. All statistical analyses were performed using SPSS 21 for Windows.

RESULTS

During the period between January and April 2016, a total of 197 patients were recruited. The detailed distribution consisted of 52 cases (26.4%) diagnosed POP, 30 cases (15.3%) diagnosed with UI, and 5 cases (2.5%) diagnosed with FI. Table 1 showed the characteristics of subjects in this study. The majority of the subjects were less than 40 years old (54.3%), Javanese (35.0%), had BMI less than 24.99 kg/m^2 (60.4%), had previous history of vaginal delivery (45.2%), had never undergone hysterectomy (93.9%), and had reached menopause (78.2%).

Table 1. Characteristics of the Subjects

Characteristics		N	%
Age (years old)	.1	.2	.3
≥ 60	.4	22	11.2
40-59	.5	68	34.5
<40	.6	107	54.3
Ethnic	1.6.7	.8	.9
Batak	1.6.10	29	14.7
Betawi	1.6.11	20	10.2
Javanese	1.6.12	69	35.0
Padang	1.6.13	13	6.6
Sundanese	1.6.14	37	18.8
Chinese	1.6.15	9	4.6
Others	1.6.16	20	10.2

Characteristics			N	%
Parity	.17		.18	.19
Multiparous	.20		82	41.6
Primiparous	.21		34	17.3
Nulliparous	.22		81	41.1
Body Mass Index (BMI) (kg/m^2)			.23	.24
≥30 (Obese)	.25		23	11.7
25-29.99 (Overweight)	.26		55	27.9
≤24.99 (Under/normoweight)			119	60.4
Mode of delivery	.27		.28	.29
Vaginal	.30		89	45.2
Cesarean section	.31		16	8.1
Vaginal and cesarean delivery			11	5.6
Heaviest birth weight				
≥3325 grams	.32		55	27.9
<3325 grams	.33		61	31.1
Hysterectomy history			.34	.35
Yes	.36		12	6.1
No	.37		185	93.9
Menopausal status			.38	.39
Postmenopause		1.6.40	154	78.2
Premenopause			43	21.8
Weight lifting habit				
Yes	.41		57	28.9
No	.42		140	71.1
	.43			

Bivariate analysis of several risk factors that were considered to have impact on the occurrence of PFD are presented in Table 2. Age above 60 years old (p<0.001, OR 68.96, 95% CI 17.08-278.53) and multiparity (p<0.001, OR 76.18; 95% CI 17.42-333.21) were the two strongest risk factors that contributed to the occurrence of PFD. Logistic regression analysis suggested that age above 60 years old had the strongest impact on the occurrence of PFD (p=0.038; OR 8.30; 95% CI 1.13-61.14).

Table 2. Bivariate Analysis between the Risk Factors and the Occurrence of Pelvic Floor Dysfunction (PFD)

Characteristics	PFD (+) N (%)	PFD (-) N (%)	p value	OR (95% CI)
Age (years old)				
≥ 60	19 (86.4)	3 (13.6)	<0.001+	68.96 (17.08-278.53)
40-59	37 (54.4)	31 (45.6)		13.00 (5.65-29.89)
<40	9 (8.4)	98 (91.6)		Reference
Tribe				
Batak	13 (44.8)	16 (55.2)	0.142+	1.81 (0.81-4.04)
Others	52 (31.0)	116 (69.0)		
Parity				
Multiparous	54 (65.9)	28 (34.1)	<0.001+	76.18 (17.42-333.21)
Primiparous	9 (26.5)	25 (73.5)		14.22 (2.88-70.21)
Nulliparous	2 (2.5)	79 (97.5)		Reference

Characteristics	PFD (+) N (%)	PFD (-) N (%)	p value	OR (95% CI)
Body Mass Index (BMI) (kg/m²)				
≥30	10 (43.5)	13 (56.5)	0.347+	1.85 (0.74-4.60)
25-29.99	20 (36.4)	35 (63.6)		1.37 (0.70-2.70)
≤24.99	35 (29.4)	84 (70.6)		Reference
Mode of delivery				
Vaginal	55 (61.8)	34 (38.2)	0.004+	1.94 (0.55-6.85)
Cesarean section	3 (18.8)	13 (81.2)		0.23 (0.05-1.56)
Vaginal and cesarean section	5 (45.5)	6 (54.5)		Reference
Largest birth weight				
≥3325 grams	34 (61.8)	21 (38.2)	0.123+	1.79 (0.85-3.75)
<3325 grams	29 (47.5)	32 (52.5)		
Hysterectomy history				
Yes	7 (58.3)	5 (41.7)	0.064*	3.07 (0.93-10.07)
No	58 (31.4)	127 (68.6)		
Menopausal status				
Postmenopause	35 (81.4)	8 (18.6)	<0.001+	18.08 (7.61-42.97)
Premenopause	30 (19.5)	124 (80.5)		
Weight lifting habit				
Yes	24 (42.1)	33 (57.9)	0.083+	1.76 (0.93-3.33)
No	41 (29.3)	99 (70.7)		

*+Chi-square test, * Fischer-exact test, PFD: Pelvic floor dysfunction*

DISCUSSION

In this study, the prevalence of PFD was 33%. The reported prevalence of PFD in the world varies, in United States 23.7% in 2008 and 67.5% reported in Turkey.[2,12] The number of patients seeking medications for PFD is low. One possible explanation is that patients with PFD are often embarrassed, making them rarely seek treatment.

The prevalence of POP reported varied from country to country. Nygaard found that the prevalence of POP in United States was 2.9%, while the of POP in Netherland was 12.1%.[2,13] The prevalence of POP in this study was greater than other studies. Dr. Cipto Mangunkusumo Hospital is a tertiary care center, and urogynecologist are limited to tertiary hospitals. Thus, patients with POP are often referred to this hospital.

The prevalence of UI in Dr. Cipto Mangunkusumo was 15.3%. Of this prevalence, 7.1% had stress urinary incontinence (SUI), 4.6% had urge urinary incontinence (UUI) and 3.6% had mixed urinary incontinence (MUI). This result was similar to other study conducted in United States which found that the prevalence of UI was 15.7%.[2] The highest prevalence was found in women aged 70-74 years old, which was amounted to 51.9%. This study mentioned that the number of women seeking medical help regarding IU was low despite frequent symptoms and disrupted daily activities. This might be due to lack of knowledge regarding condition suffered. They often think that UI is a normal condition that occurs as a part of aging or postpartum process. There is also a belief that no intervention could be done to cure symptom.[5]

The prevalence of IF in this study was 2.5%. In other study, the prevalence of IF cases was between 3.5% and 9%.[5,14] The low prevalence might be due to embarassment to seek treatment and lack of knowledge regarding IF.

Previous studies revealed age, vaginal delivery, and obesity as risk factors for PFD, along with genetic predisposition contributing to the development of PFD in some women.[14] Kepenekci, et al.[12] reported age as a risk factor related to the incidence of PFD. Vaginal delivery and high parity were known to increase both urinary and defecation issues related to PFD.[12]

According to multivariate analysis, the most contributing risk factor to the incidence of PFD was age, followed with parity, ethnicity, mode of delivery, and menopausal status. Gradual denervation of smooth muscles on the pelvic floor in the aging process also contributes to the weakening of smooth muscle. Muscle denervation increases with prolonged active phase in vaginal deliveries. Age also contributes to degradation of nerves in accordance with prior degradation of muscle fibers activity. There is a decrease of the components in fascia including collagen, elastin, and smooth muscle in connective tissue matrix.[15] Ethnicity is proven as a weak risk factor contributing to incidence of PFD, as there are anatomical and functional variations of pelvic floor across ethnicities resulting in difference of risk between each ethnic group.[16]

CONCLUSION

The prevalence of PFD in this study is 33%. Age above 60 years and multiparity are the two strongest risk factors contributing to the occurrence of PFD. Further studies with larger sample sizes are needed in order to obtain more precise results regarding the prevalence and characteristics of patients with PFD.

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