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Characteristic of patients with pelvic organ prolapse in obstetric and gynecologic outpatient clinic in sanglah hospital, bali, indonesia from January 2014 to December 2015



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ABSTRACT

Introduction: Pelvic organ prolapse (POP) can be found in more than half of all women who had given birth. Pelvic organ prolapse can be a burden to the patients, whether it is psychological, social and/or economic. The aim of this study is to investigate the characteristics of patients with POP at the Sanglah Hospital, Denpasar, Indonesia.

Method: This is a descriptive retrospective study conducted in the gynecologic outpatient clinic, Sanglah Hospital, Denpasar. All newly diagnosed cases of POP in the clinic from January 2014 to December 2015 were recorded. The diagnosis and severity of prolapse were assessed by using Pelvic Organ Prolapse Quantification (POP-Q) system. Data were obtained both from the outpatient clinic's registry and from patient's medical record.

Result: In 2 years period (1 January 2014 to 31 December 2015), there were 43 new cases of POP (11.38%) out of 378 gynecologic cases recorded in the clinic's registry. In 2 years period, there were 475 gynecologic surgeries performed and 41 out of the 43 patients with POP had undergone a surgical procedure.

Conclusion: Severe stage POP is most likely to be found in women with high parity, older age (≥ 60 years old), and who went through menopause already. It is also estimated that the real incidence of POP is higher, due to POP being asymptomatic. It is important for women to be educated about symptoms and treatment of POP because most patients come to seek for a care when they have a more severe symptom.

Keywords:

Cite This Article: Kusuma IGYS, Putra IGM, Megadhana IW, Sanjaya INH, Fajar Manuaba IBG . 2017. Characteristic of patients with pelvic organ prolapse in obstetric and gynecologic outpatient clinic in sanglah hospital, bali, indonesia from january 2014 to december 2015 . *Bali Medical Journal* 6(1): 76-81. DOI:10.15562/bmj.v6i1.390

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INTRODUCTION

Pelvic organ prolapse (POP) is defined as an abnormal descent of one or more of the anterior vaginal wall, posterior vaginal wall, uterus (cervix) or the apex of the vagina (vaginal vault or a cervical stump if a hysterectomy had been performed earlier).¹ Depends on what organ is prolapsed, POP can manifests as uterine prolapse, vaginal vault prolapse, cystocele or anterior vaginal prolapse, and rectocele or posterior vaginal prolapse.

Based on physical examination, more than half of all women who had given birth are affected by this condition and mostly are asymptomatic. As the age increases, this number also increases.² The prevalence of POP increases by 40% for every decade of a woman's age.³ In the menopausal women, POP can be found in 31.8% of the population.⁴ In the United States, the prevalence of various stages POP in women aged 50 to 79 years old is 41.1% with only 5 to 20% show symptoms of POP.⁵ The yearly estimated POP incidences are 9.3% for cystocele, 5.7% for rectocele, and 1.5% for uterine prolapse.⁴

In Indonesia, a study in Dr. Soetomo Hospital, Surabaya, during a 5 year period (2007 to 2011), found 371 women who diagnosed with POP; only 92 cases have complete history and data about the risk factors (parity, age, menopause, and body mass index). Of the 92 POP cases found, it consisted of 61 (66.3%) uterine prolapse cases, 6 (6.52%) cystocele cases, and 25 (26.1%) cases are combinations.⁶ Another study about urine incontinence in women with POP in Sanglah Hospital, Bali from 2009 to 2010, found 67 women have POP.⁷

Pelvic organ prolapse can be a burden to the patients, whether it is psychological, social and/or economic. This burden is higher if it is not properly treated. In the developed countries, 11 to 19% of women had undergone repair surgery for POP.⁵ The mean age of women who had repair surgery is 60 years old.⁸ In the United States, more than 300.000 POP surgeries are done per year and the recurrence rate is about 30%.⁹

Some risk factors associated with prolapse have been identified, including age, vaginal delivery,

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trauma during labor, chronic raised intra-abdominal pressure (obesity, chronic constipation, chronic cough, and weightlifting), menopause, deficiency of estrogen, genetic, smoking, history of surgery, and collagen abnormality.² Sometimes, combinations of these risk factors can be found in patients with POP. The risk factors vary among individuals and can also be affected by race.¹⁰ Despite POP is usually found in women with high parity, some are not affected. This condition is even found to affect primiparas, thus it is thought that complex environment factors play a role in the development of POP or increase the severity of POP as well.⁴ The correlation between risk factors and POP stage or components of POP is not fully understood.

Currently in Bali, especially in Sanglah Hospital, there is no study about the characteristics of women who affected by POP. It is important to assess any characteristics which might lead to a better understanding of the risk factors itself. Thus this study is conducted to investigate the characteristics of patients with POP at the Sanglah Hospital, Denpasar, Indonesia, from January 2014 to December 2015.

METHOD

This is a descriptive retrospective study which was conducted in the gynecologic outpatient clinic,

Sanglah Hospital, Denpasar. All newly diagnosed cases of POP in the clinic from January 2014 to December 2015 were recorded. The diagnosis of POP was made based on interview and physical examination. The severity of prolapse was assessed by using Pelvic Organ Prolapse Quantification (POP-Q) system (Fig. 1), which divides it into stage I to IV (Table 1).¹ All diagnoses have been confirmed by an urogynecology specialist. Data were obtained both from the outpatient clinic's registry and from patient's medical record. Data then were recorded in a form to be analyzed later in Microsoft Excel, presented as tables and narratives.

RESULTS AND DISCUSSION

In 2 years period (1 January 2014 to 31 December 2015), there were 43 new cases of POP (11.38%) out of 378 gynecologic cases recorded in the clinic's registry. In 2 years period, there were 475 gynecologic surgeries performed and 41 out of the 43 patients with POP had undergone a surgical procedure. Compared to the previous study in Sanglah Hospital from 2009 to 2010, 67 POP cases were recorded. Another study in Dr. Soetomo Hospital, Surabaya, Indonesia in 5 years period (2007 to 2011), found 371 women who diagnosed with POP. The characteristics of the POP patients in this study can be seen in Table 2.

According to age distribution, most of the POP patients are older than or equal to 60 years old (53.48%) (Table 2). This finding is similar to another study in Dr. Soetomo Hospital, Surabaya, where 61.96% of POP patients are older than 60 years.⁶ This finding is complementary to another study which reported an increasing risk of POP as much as 40% per decade of ages.³ Interestingly, one woman aged less than 40 already have POP. A further investigation showed that she has some other risk factors (occupation, parity, and type of delivery), suggesting that combination of risk factors is highly likely to cause POP. Aging is a complex process and its relation to POP incidence is mainly due to a combination of aging, hypoestrogenism, and degenerative diseases.¹¹ As a woman ages, the fascia and connective tissues in the pelvic floor become weaker, causing an excessive strain on the pelvic floor, leading to prolapse.¹²

In this study, it is found that the percentage is highest in women who have BMI of 26-29.9 kg/m² (44.19%), followed by women with BMI ≤ 25 kg/m² (39.53%) and ≥ 30 kg/m² (16.28%) respectively (Table 2). The epidemiologic study showed that BMI equal or greater than 30 kg/m² increased the risk of POP as much as 40-75%.² Increased body weight will chronically increase the intra-abdominal pressure and it will affect the pelvic floor. The raised pressure will give an excessive stress to the pelvic floor, causes dysfunction, and later POP.¹¹

Table 1 Pelvic Organ Prolapse Quantification (POP-Q) system¹

Stage	Description
0	No prolapse. Aa, Ba, Ap, Bp are all at -3 cm and C or D between -TVL and < (TVL-2) cm.
I	The most distal portion of the prolapse is more than 1 cm above the level of the hymen
II	The most distal portion of the prolapse is situated between 1 cm above the hymen and
IV	Complete eversion or eversion at least within 2 cm of the total length of the lower genital tract is demonstrated (≥+(TVL-2) cm).

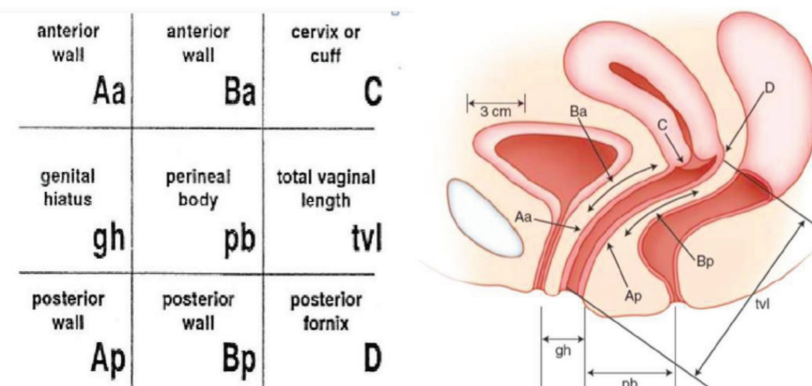


Figure 1 The point of references in Pelvic Organ Prolapse Quantification (POP-Q) system; the schematic (a) and the projection in anatomical model (b)¹

Table 2 Characteristics of the patients with POP in Sanglah Hospital, Bali, Indonesia from Januari 2014 to December 2015 (n = 43)

Characteristics	n	%
1 Age		
- <40 years old	1	2.33
- 40–49 years old	3	6.98
- 50–59 years old	16	37.21
- ≥60 years old	23	53.48
2 Body mass index		
- ≤25 kg/m ²	17	39.53
- 26–29.9 kg/m ²	19	44.19
- ≥30 kg/m ²	7	16.28
3 Menopause		
- Yes	39	90.7
- No	4	9.3
4 Education		
- Poorly educated	15	34.88
- Elementary School	11	25.58
- Junior High School	10	23.26
- Senior High School /Bachelor degree	7	16.28
5 Occupation		
Hardworker		
- Farmer	16	37.21
- Merchant	22	51.16
Non-hardworker		
- Housewives	3	6.98
- Office worker	2	4.65
6 City of origin		
- Denpasar	7	16.28
- Badung	14	32.55
- Tabanan	6	13.95
- Gianyar	3	6.97
- Klungkung	1	2.33
- Jembranan	6	13.95
- Karangasem	2	4.65
- Jember	1	2.33
- Banyuwangi	1	2.33
- Situbondo	1	2.33
- Kupang	1	2.33
7 Parity		
- 1	0	0
- 2	9	20.93
- 3	10	23.26
- ≥4	24	55.81

Table 2 Continues

Characteristics	n	%
8 Delivery type		
- Vaginal delivery	43	100
- Vacuum extraction	0	0
- Forceps extraction	0	0
- Surgery (c-section)	0	0
9 History of hysterectomy		
- Yes	3	6.98
- No	40	93.02
10 Main symptoms		
- Protruding mass from vagina	40	93.02
- Discomfort in vagina	2	4.65
- Urinary incontinence	1	2.33
11 Additional symptoms		
- Stress urinary incontinence	15	34.88
- Overactive bladder	0	0
- Lower UTI	0	0
12 Types of POP		
- Uterine prolapse	0	0
- Cystocele	2	4.65
- Rectocele	0	0
- Uterine prolapse and cystocele	2	4.65
- Uterine prolapse and rectocele	0	0
- Uterine prolapse and cystorectocele	34	79.07
- Cystorectocele	2	4.65
- Vaginalvault prolapse and cystorectocele	3	6.98
13 Stage of POP		
- Stage I	2	4.65
- Stage II	15	34.88
- Stage III	17	39.54
- Stage IV	9	20.93
14 Treatment		
a. Conservative:		
- Pessarrium	2	4.65
- Pelvic floor exercise	0	0
b. Operative:		
1. Uterine conservation surgery		
- Purandare	1	2.33
2. Vaginal reconstruction, hysterectomy		

Table 2 *Continues*

Characteristics	n	%
- TVH	0	0
- TVH-AC	1	2.33
- TVH-AC- CPR	30	69.76
3. Vaginal apex reconstruction		
- SSF-AC-CPR	1	2.33
- SSF-AC-CPR-Trachelectomy	1	2.33
4 Anterior wall reconstruction		
- AC	1	2.33
5 AP wall reconstruction		
- AC-CPR	2	4.65
6 Obliteration		
- Colpocleisis	4	9.30

*UTI: urinary tract infection, TVH: total vaginal hysterectomy, AC: anterior colporrhaphy, CPR: colpoperineorrhaphy, SSF: Sacrospinous fixation, AP: anterior posterior

Menopause also plays a role in the POP pathogenesis. The percentage of menopausal women who have POP in this study is high (90.7%) compared to women who have not gone through menopause. This finding is complementary to another study which found that 85.87% women with POP have already gone through menopause.⁶ During menopause, the estrogen level in the circulation will drop to its lowest. This low level of estrogen will increase the amount of collagen type III and will lower the ratio of collagen types I/III.² The collagens synthesized during menopause are immature collagens, which is more vulnerable to the endogenic protease, thus affect the strength and durability of connective tissue.¹¹ This change will affect subepithelial tissue, uterosacral ligaments, and cardinal ligaments, which then will lead to POP.¹³

A healthcare seeking behavior is thought to be related to the educational background, but findings in this study suggest that symptoms might be a more important determiner in the case of healthcare seeking behavior. Most women in this study are poorly educated (34.88%) or only finished elementary school (25.58%). Most women seek for a consultation because of mass protruding from the vagina (93.02%), which is categorized in the severe grade of POP (stage III and IV).

Occupation also plays a role as a risk factor. Heavy workers, such as labors or merchants, have a higher risk of POP. This is due to the weightlifting activity that will raise the intra-abdominal pressure.¹¹ In this study, 88.37% women are heavy workers, with 37.21% being farmers and 51.16% being merchants. This finding is complementary to a study that found an association between stage of POP-Q greater than or equal to stage II, in labors or factory workers compared to another occupations.² In Danish population, weightlifting related

occupation increases the risk for POP surgery as much as 60% compared to other women within the population, without adjusting for the another factor such as parity.¹¹

Race is thought to be linked to some hereditary phenotypes, such as pelvic shape, muscle mass, and concentration of collagen in connective tissue, but the research data are limited. The role of genetic factor in the etiology of POP cannot be doubted since there is an increased risk of 2 to 3 times in women whose mother or sister also has POP.² Another study also found that women which have a sister younger than 55 years old with stage III or IV POP have a risk of POP 5 times higher compared to general women population.¹¹ In this study, most participants are from Bali, but unfortunately, there is no data about the history of POP in the family.

In this study, more than half of the patients with POP (55.81%) have had four or more deliveries. All POP patients in this study have only had a vaginal delivery. Parity increases the risk of POP and vaginal delivery is a major risk factor for POP. The risk is 8.4 times in women who had two vaginal deliveries and 10.9 for those who had four or more vaginal deliveries.¹³ During pregnancy and post-partum involution phase, there is a remodeling process of the connective tissue which involves the synthesis and degradation of collagen and elastin.² This process also occurs in the pelvic floor during pregnancy, delivery, and postpartum. Besides that, during labor and vaginal delivery, there could be direct trauma to the nerves, muscles, or connective tissue. Levator ani muscles could be partially denervated, lose its tone, cause the genital hiatus to open, and finally lead to prolapse of the visceral pelvic organ.¹²

Direct trauma due to hysterectomy procedure can also cause POP. The risk of POP increased 5.5 times in post hysterectomy patients. This is due to direct damage to the pelvic muscles, nerves, and connective tissues, such as fascia pubovesicalis and fascia rectovaginalis. Pelvic organ prolapse can also happen in vaginal hysterectomy. In this study, 3 patients (6.98%) had undergone a hysterectomy.

The distributions based on the POP types are uterine prolapse with cystocele (79.7%), vaginal vault prolapse with cystocele (6.98%), cystocele (4.65%), cystocele (4.65%), and uterine prolapse with rectocele (4.65%). There were no cases of uterine prolapse or rectocele alone, where in most of the cases (95.35%) there are combinations of two or more compartment that support the pelvic floor. This finding is different with a similar study conducted in Dr. Soetomo Hospital, Surabaya, where the combination type is only found in 26.1% cases and most of the cases (66.3%) are uterine prolapse cases.⁶

Table 3 Degree of POP and the risk factors

Risk Factors	Degree of POP			
		Mild-moderate (Stage I-II)	Severe (Stage III-IV)	Total (%)
Age	< 40 (%)	0 (0)	1 (2.33)	1 (2.33)
	40-49 (%)	1 (2.33)	2 (4.65)	3 (6.98)
	50-59 (%)	7 (16.28)	9 (20.93)	16 (37.21)
	≥ 60 (%)	9 (20.93)	14 (32.55)	23 (53.48)
	Total (%)	17 (39.53)	26 (60.47)	43 (100)
BMI	≤ 25(%)	3 (6.98)	14 (32.55)	17 (39.53)
	26-29.9(%)	10 (23.26)	9 (20.93)	19 (44.19)
	≥ 30 (%)	4 (9.3)	3 (6.98)	7 (16.28)
	Total (%)	17 (39.53)	26 (60.47)	43(100)
Menopause	Yes(%)	16 (37.21)	23 (53.49)	39 (90,7)
	No(%)	1 (2.33)	3 (6.98)	4 (9.3)
	Total (%)	17 (39.53)	26 (60.47)	43 (100)
Parity	1 (%)	0 (0)	0 (0)	0 (0)
	2 (%)	2 (4.65)	7 (16.28)	9 (20.93)
	3 (%)	5 (11.63)	5 (11.63)	10 (23.26)
	≥ 4 (%)	10 (23.26)	14 (32.55)	24 (55.81)
	Total (%)	17 (39.53)	26 (60.47)	43 (100)

The basic mechanism of POP is a failure of the supporting system of the pelvic organ. This supporting system can be divided into 3 major compartments, which are apical/vault compartment, anterior compartment, and posterior compartment.¹⁴ According to integral theory, loss of pericervical ring support at the vault of the vagina is the main defect that causes prolapse.¹⁵ This pericervical ring is formed by the cardinal ligaments, sacrouterine ligaments, pubocervicalis fascia, and rectovaginal fascia. The integrity of this ring is crucial to the defect in the anterior and posterior compartment. The finding in this study also supports the “trap door” theory, which explains the prolapse combination in each compartment.¹⁶ According to this theory, the stage of anterior compartment prolapse depends on the damage of levator ani muscles and the ligaments, and also the increasing intra-abdominal pressure. Loss of support from the levator ani muscles will cause the trap door to open (levator plate rotates downward), widened the genital hiatus. This will also stress the vault support, leading to deterioration of anterior wall prolapse. Then, trauma or damage to levator ani muscles will cause an imbalance of pressure, increasing the pressure in the posterior compartment and stressing the structures related to stage II support. The DeLancy anatomical concept gives an explanation about the prolapse in posterior compartment. The support for posterior compartment depends on the dynamic

interaction between muscles and connective tissue in the pelvic floor.¹⁷⁻¹⁹

The treatment for POP cases found in this study varies includes conservative and operative therapy depends on symptoms, patient's consideration, and surgery risk. Mostly (95.35%) received operative treatment. This operative treatment includes vaginal hysterectomy (72.09%), obliteration procedure (9.30%), vaginal vault reconstruction (4.65%), anterior wall reconstruction (2.33%), anterior-posterior wall reconstruction (2.33%), and uterine conservation surgery (2.33%) (Table 2). Prolapse could be found in more than one compartment, thus operative treatment should consist of some procedures involving these following compartments: apical, anterior wall, and posterior wall.²⁰ Obliteration procedure, in this case, colpocleisis, is considered in older sexually inactive women whose have medical comorbidity, because of its short duration lowers the perioperative morbidity and it also has a very low recurrence risk.⁹ Uterine conservative surgery is considered in women who still want to give birth. In this case, the purandare technique is used, where the patient's own fascia is used to improve the uterine support.⁹

Pessarium is used in 4.64% of the cases. It is indicated because the patients have stage II prolapse, and patients' own consideration to choose the non-operative treatment. Pessarium can be used in any cases of POP without concerning the stage and

location of prolapse. This instrument is commonly used as first line treatment in prolapse. Women who received pessarium as first line treatment is mostly satisfied (75-90%), but women who received operative treatment have a higher satisfaction level in general.⁹

Stage 3 prolapse (39.54%) has the highest percentage according to this study, followed by stage II, IV, and I (34.88%, 20.93%, and 4.65% respectively). There are 26 cases in this study (60.47%) with severe prolapse (stage III and IV). These findings are similar to a previous study in Dr. Soetomo Hospital, Surabaya. Stage III prolapse has the highest percentage of 60.66%, followed by stage IV (31.15%), stage II (8.20). It is also found in this study that parity, age, and menopause are directly proportional to the degree of POP (Table 3), thus severe prolapse is highly likely to be found in women with high parity, older age, and who went through menopause already.

CONCLUSION

There were 43 (11.38%) POP cases out of 378 gynecologic cases found in Obstetric and Gynecologic Outpatient Clinic in Sanglah Hospital, Denpasar. Surgery was done in 41 patients, out of 475 gynecologic surgery performed at Sanglah Hospital. Severe stage POP is mostly likely to be found in women with high parity, older age (≥ 60 years old), and who went through menopause (parity, age, and menopause are directly proportional to the stage of POP). It is important for women to be educated about symptoms and treatment of POP because most patients come to seek for a medical care when they have a more severe symptom. It is estimated that the real incidence of POP is higher, due to POP being asymptomatic.

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