EFFECT OF PELVIC FLOOR EXERCISE ON URINE ELIMINATION IN POSTPARTUM WOMEN

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Abstract

Physical changes of the postpartum women in the urinary system involve the elimination function of urine which involves the bladder structure. Problems with the elimination system after childbirth can occur for years if they don't get proper treatment right after delivery. This study aimed to identify the effect of pelvic floor exercise on urine elimination in postpartum women. Methods: The research design used quasi-experimental with a post-test only design approach. The sample was selected based on the inclusion criteria. Sample size were 64 people (intervention group: 32 people and the control group: 32 people). Data collection used questionnaires and self-assessment sheets. Data analysis used univariate and bivariate (Chi-square). Results: The results showed no difference in urine elimination both urination frequency (p = 0.450) and urine flow characteristics (p = 0.519) in postpartum women who performed pelvic floor exercise and who did not carry out pelvic floor exercise. However, respondent characteristics that influenced urine elimination (urine flow characteristics) were the age (p = 0.044), parity (p = 0,000) and types of delivery (p = 0.031). Conclusion: Pelvic floor exercise which is carried out in the early postpartum period do not affect urine elimination in terms of urination frequency and urine flow characteristics. Further research on various measures aimed at strengthening pelvic floor muscles in addition to pelvic floor exercise needs to be done to reduce the problem of urine elimination in postpartum women.
Keywords: Pelvic floor exercise, urine elimination.

INTRODUCTION

The postpartum period is anti-climax of pregnancy and is not only the culmination of pregnancy, childbirth, and birth but also the beginning of the childbearing phase in the family life cycle (May & Mahlmeister, 2009). At the end of the postpartum period all body systems in the women will recover due to the process of pregnancy and return to the state as before pregnancy. Proper postpartum care in the hospital can enhance the women's health status, thereby shortening hospital stay and discharge. A good support system from health workers and families may help the women to get through physical and psychological adaptation in the postpartum period so they will have optimal health status.

Physical changes of the postpartum women in the urinary system involve the elimination function of urine which involves the bladder structure. Problems with the elimination system after childbirth can occur for years if they do not get proper treatment immediately since delivery (MacArthur et al 1991, WHO 1998 in Fraser & Cooper, 2014). One of the urine elimination problem on postpartum women is urinary incontinence. The incidence of urinary incontinence on postpartum women at dr. Soekardjo Hospital in Tasikmalaya City in 2017

was as much as 22% of the total complications of postpartum, where the detailed urinary incontinence that occurred in postpartum women who delivered vaginally were 12 people (13%), and SC were as many as 8 people (9%). Research related to the incidence of urinary incontinence in postpartum women was conducted by Thom DH, Rortveit G. (2010) which stated that as many as 33% of women experienced urinary incontinence in the first three months postpartum (95% confidence interval (CI) 32-36%). The incidence of urinary incontinence was higher in vaginal deliveries (31%, 95% CI 30-33%) compared with SC deliveries (15%, 95% CI 11-18%). Pinem, Setyowati & Gayatri (2012) concluded that an independent exercise package for postpartum mothers can reduce the incidence of urinary incontinence. However, research on measures to reduce the incidence of urinary incontinence such as pelvic floor exercise still needs to be done mainly because this exercise procedure is still not widely known by the public which will further impact on the high incidence of urinary incontinence, especially in postpartum women. The purpose of this study was to identify the effect of pelvic floor exercise on urine elimination in postpartum women.

METHODS

The design of this study was a quasi-experimental with a post-test-only design. The study was conducted at dr. Soekardjo Hospital Tasikmalaya. The study was carried out from October 2018 to May 2019. The sampling technique used purposive sampling. The respondents were selected based on inclusion criteria namely postpartum with vaginal delivery or post SC on the first day to the fourth day, no labour complications and no using of urinary catheter. The total sample of 64 people divided into 32 people in the control group and 32 in the intervention group. Respondents in control group were given routine care, but in the intervention group the researcher gave explanation about the pelvic floor exercise. Pelvic floor exercise is a set of activities which involve straining of the pubococcygeus muscles (Kegel exercise) and rectal muscles. The respondents in the intervention group carried out pelvic floor exercise 10 times a day. Both intervention or control group filled the self- report form once a day in the evening. The self- report form contained urinary frequency and urine flow characteristics. Data analysis used univariate and bivariate using Chi-square (X^2) statistical tests with a significance level of 95% ($\alpha = 0.05$). The homogeneity test showed that all characteristics of the respondents had p-value > 0.05.Thus it can be concluded that there are equality in the characteristics of respondents between the intervention group and the control group, so that if there is a difference after the intervention is carried out, the difference is concluded as the effect of the intervention.

The results are presented in the tables. The tables show urine elimination characteristics (based on urine frequency and urine flow characteristics) and the difference of urine elimination between intervention and control group. The results are categorized based on parity, types of delivery and elimination problems in previous pregnancy. Effect of respondent's characteristics on urine elimination after intervention also presented in the table. The study got ethical clearance from STIKes Bakti Tunas Husada Tasikmalaya Health Research Ethics Commission, certificate No.200/kepk-bth/11/2019.

RESULTS

A. Urine elimination on postpartum women

Table 1 Urine Elimination on Intervention and Control Group

Urine elimination	Intervention group		Control group	
	n	%	n	%
Urinary frequency				
a. 3-5 times a day	13	41	2	6
b. 6-8 times a a day	17	53	15	47
c. > 8 times a day	2	6	15	47
Urine flow characteristics				
a. dribbling	0	0	0	0
b. low urine volume	4	13	10	31
c. strong urine stream	25	78	17	53
d. Uncertain (sometimes dribbling, low urine volume or a lot of urine volume)	3	9	5	16

Table 1 shows that in intervention group, urinary frequency more than 8 times a day were less than in control group and 78 % respondents have strong urine stream.

B. The difference of urine elimination between intervention and control group

Table 2 The Difference of Urine Elimination between Intervention and Control Group

Urinary frequency			Urine flow characteristics		
Group	n	p-value	Group	n	p-value
Intervention	32	0.450	Intervention	32	0.519
Control	32		Control	32	

Table 2 shows that urinary frequency and urine flow characteristics have p-values > 0.05. This means that there is no difference in urine elimination in the intervention group and the control group.

Tabel 3 The Difference of Urine Elimination Between Intervention and Control Group Based on Parity, Types of Delivery and Elimination Problem in Previous Pregnancy

Characteristics	Urinary frequency			Urine flow characteristics		
	Group	n	p-value	Group	n	p-value
Parity	Intervention	16	0.361	Intervention	16	0.004
a. Primipara	Control	8		Control	8	
b. Multipara	Intervention	26	0.361	Intervention	26	0.004
	Control	24		Control	24	
Types of delivery	Intervention	22	0.699	Intervention	22	1.000
a. Vaginally	Control	22		Control	22	
b. SC	Intervention	10	0.361	Intervention	10	0.004
	Control	10		Control	10	
Elimination problems in previous pregnancy	Intervention	15	0,280	Intervention	15	1.000
	Control	22		Control	22	
a. Yes						
b. No	Intervention	17	0.280	Intervention	17	1.000
	Control	10		Control	10	

Table 3 shows that the characteristics that have a p-value < 0.05 are the characteristics of urine flow in primipara and multipara (p-value = 0.004), and the characteristics of urine flow in the SC delivery (p-value 0.004). This shows that there are differences in urine elimination for primiparous and multiparous parity as well as SC delivery in the intervention and control groups.

Table 4 Effect of Respondent's Characteristics on Urine Elimination after Intervention

No	Characteristics	p-value	
		Urinary frequency	Urine flow characteristics
1	Age	0,840	0,044
2	Parity	0,185	0,000
3	Types of delivery	0,467	0,031
4	Elimination problem in previous pregnancy	0,194	0,935

Table 4 shows that the characteristics that have a p-value < 0.05 are age (p-value 0.044), parity (p-value 0,000) and type of delivery (p-value 0.031). This shows that age, parity, and type of delivery affect urine elimination after pelvic floor exercise.

DISCUSSION

The Effect of Pelvic Floor Exercise on The Urine Elimination of Postpartum Women

The results showed that there is no difference of urine elimination in the intervention group and the control group (p > 0.05). Research results that are in line with this study include research conducted by Sari Y.K (2015) which stated there was no significant difference in frequency p = 0.238 (<0.05) and urine fluid volume p = 0.102 (<0.05) before and after Kegel exercises in postpartum women. The study that are not in line with the results of this study include the results of research conducted by S.Morkved, K. Bo (2005) which stated that there was a significant difference (p <0.01) in the intervention group who underwent pelvic floor exercise training, where the pelvic floor exercise was effective in increasing pelvic muscle strength and reducing urinary incontinence during the postpartum period. He also stated that pelvic floor exercise is effective in reducing urinary incontinence if done with the guidance of a physiotherapist. Guidance from a physiotherapist once a week can increase the effectiveness of exercise and the mother's motivation to continue to exercise during the postpartum period. The results are strengthened by other studies such as research from Yuni (2017), which stated that there was a change between the function of urine elimination in postpartum mothers when doing Kegel exercises. Murbiah (2015) stated there was a difference between the treatment group and the control group with a difference in the proportion of discourse 80% in the treatment group and 46.7% in the control group with a p-value of 0.027. She concluded there was an effect of pelvic floor muscle training on the prevention of urinary incontinence in postpartum women. Rahajeng (2010) proved that pelvic floor muscle training can improve pelvic floor muscle strength from 4 weeks to the first 12 weeks postpartum. Good pelvic floor muscle strength in postpartum women can help prevent urinary incontinence in postpartum. He concluded that there was an influence between pelvic floor muscle training and the prevention of urinary incontinence. The same thing was stated by Chan, Cheung, Yiu, Chung (2012) that there was an effect of pelvic floor exercise on the occurrence of stress urinary incontinence (SUI) with p-value = 0.009.

Pelvic floor exercises are movements that are focused on strengthening the pelvic floor muscles. Pelvic floor exercise is a simple exercise that can be done anywhere and anytime. Pelvic floor exercises include Kegel exercises and muscle exercises around the rectum. During pregnancy, pelvic floor muscles are affected by hormonal changes, weight gain and changes in pelvic posture. Pelvic floor exercise needs to be done since pregnancy and after giving birth to help the pelvic muscles return to normal function and to maintain muscle tone so that pelvic floor muscle function can be maintained. During childbirth, the pelvic floor muscles relax and during postpartum the pelvic floor muscles strength increases again. If done regularly, this exercise can help prevent uterine prolapse and stress incontinence later in life.

The results of previous studies indicate that the average success of pelvic floor muscle training (pelvic floor exercise) to prevent urinary incontinence is reported at 5% -75% (Freeman, 2004). According to Purnomo (2003), pelvic floor muscle training is the most popular non-operative therapy for coping with urinary incontinence. This is reinforced by the results of research conducted by Rejisha TR (2015) which stated that pelvic floor muscle exercises significantly (P = 0.006) were effective in reducing postnatal SUI. He also stated the severity of SUI in the control group was greater than the intervention group. Several factors may cause the difference result of the study including duration of intervention, quality of the intervention by the respondents, respondent's compliance of the intervention and respondent's muscle structures which involve in urine elimination.

Effect of Respondent Characteristics on Urine Elimination of The Postpartum Women

The results showed there were no respondent characteristics that affected the urinary frequency after the intervention, while those that affected the characteristics of urine flow after the intervention were age (p = 0.044), parity (p = 0.000) and type of delivery (p = 0.031). The results of this study are in line with the research of Chan, Cheung, Yiu, Chung (2012), which explained the characteristics that influence the incidence of SUI were age (p = 0.007), type of delivery (p = 0.009), increase in maternal BMI during postnatal period (p = 0.001). Islam, Bell, Hossain, Davis (2018) stated that having children more than 2 people were significantly related to SUI (OR 2.79, 95% CI 1.30-6.00; p = 0.009).

In this study, the age of respondents ranged from 20 - 35 years. In general, the age range is a productive age, which is the right age for a woman to give birth, because physiologically the

reproductive function is good. Widianti and Satianingsih (2014) stated that the age below 20 years of the uterus and pelvis had not yet reached the size of an adult allowing for a long labor. Age over 35 years the mother's condition has declined to allow for longer delivery.

In this study the majority of respondents' parity was multiparous (control group = 75%, intervention group = 81%). Pinontoan and Tombokan (2012) stated that high parity can have an impact on the emergence of various health problems both for mothers and babies born. Multiparous parity can have an impact on the retention of postpartum urine due to increased residual urine, whereas in primipara there is a risk of experiencing urinary incontinence. According to the research results of Boyles SH, H, Mori T, Osterweil P, Guise JM. (2009), as many as 17.1% of primiparas experienced urinary incontinence.

CONCLUSIONS

There was no difference in urine elimination both in postpartum women who performed pelvic floor exercise and who did not perform pelvic floor exercise. Nurses or midwives need to give health education about pelvic floor exercise to the postpartum women since they were pregnant in antenatal care, so they can practice regularly and properly to strengthen pelvic floor muscle and prevent urine elimination problems.

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