

Effectiveness of the antenatal pelvic floor exercise for stress urinary incontinence among the postpartum women

B. Khadgi, L. Shrestha, S. Shrestha

Department of physiotherapy, Kathmandu University School of Medical Sciences

Abstract- Postnatal stress urinary incontinence (SUI) is an important social and hygienic health problem affecting between 3% and 24% of adult women. This study was conducted to determine the effectiveness of antenatal exercise on postpartum women who were identified with SUI during their third trimester pregnancy. Among 103 women attending antenatal clinic of Dhulikhel Hospital, 34 women were identified with SUI during their third trimester pregnancy. They were treated by physiotherapist with antenatal exercise including education and home exercises. After 6 months, a telephone survey was conducted to find out the results of the treatment given during the antenatal period. Only 27 respondents answered the telephone survey. From these respondents, only 37% women had continued exercises where as 63 % of the women did not continue to do exercises even after identifying the problem. All women who continued the recommended exercises were found to have no SUI whereas SUI had reoccurred in 70% women who discontinued exercises. A very significant ($p=0.00$) association was found between antenatal pelvic floor muscle exercise, prevention and treatment of SUI indicating that pelvic floor exercise helps prevent SUI during antenatal period. Awareness of the importance of Pelvic floor exercise should be promoted especially in developing countries like Nepal which offers a cost effective management and improve the quality of life.

Index Terms- Pelvic floor exercise, antenatal, stress urinary incontinence, postpartum.

I. INTRODUCTION

The International Continence Society (ICS) defines urinary incontinence (UI) as a condition in which involuntary urine loss occurs. The most common form is stress urinary incontinence (SUI), defined as any urine loss resulting from physical exertion such as jumping, running and coughing. The most commonly seen problem among pregnant women is SUI¹. SUI occurs due to anatomical defects in the structures that support the bladder and urethra, resulting in suboptimal positioning of these structures at rest or on exertion. UI that is experienced during pregnancy seems to become worse as the pregnancy progresses²⁻⁴. Many studies have reported that pregnant women who had UI during pregnancy are at higher risk for postpartum UI than those without UI during pregnancy.

Urinary Incontinence is known to have detrimental effects on quality of life (QOL) in approximately 54.3 % of all pregnant women in four domains: physical activity, travel, social

relationships, and emotional health. Pelvic floor muscle exercise (PFME) is an effective treatment for SUI during pregnancy and has no significant adverse effects². Continence can be improved when incontinent pregnant women adequately perform PFME. Studies from developed countries such as Turkey and New Zealand demonstrated that PFME performed for at least 6 weeks reduced the risk of the UI in the postpartum period⁵⁻⁶. This study aimed to evaluate the effectiveness of PFME in the treatment of SUI among the third trimester pregnant women in their postpartum in a least developed country like Nepal where alternative treatment is unaffordable by a majority of population, especially rural women are accustomed to severe hardship even immediately after delivery.

II. RESEARCH METHODOLOGY

103 third trimester pregnant women who attended antenatal clinic in Dhulikhel Hospital were screened for SUI. Among them 34 women were identified with SUI through expanded paper towel test. Ethical approval was taken from the institutional review committee for identifying SUI among pregnant women with positive expanded paper towel test. Informed verbal and written consent was obtained for further study from the participants. They were treated by physiotherapist individually with education about the physiological, anatomical and hormonal changes that occur during pregnancy and postpartum. During the education the possibilities and complications that could occur during postnatal phase were clearly explained with PFME was administered and Knack maneuver training was recommended for home exercise. After 6 months, the subjects were followed up through a telephone survey to learn about their PFME behavior and continence status and the effectiveness of the treatment. Out of 34 women only 27 subjects participated in the survey and other 7 could not be reached. The questions asked during the telephone survey are presented in appendix. The study analyzed the association between the variables like age, BMI, occupation, parity and mode of previous delivery and SUI with Chi-square test.

III. WRITE DOWN YOUR STUDIES AND FINDINGS

Only 37% of subjects continued exercise (among 27 respondents) who received exercise during their pregnancy and 63 % discontinued exercise even after identifying the problem. All women who continued exercise reported no problem of SUI in their postnatal phase till the time of conducting the survey.

Among women who discontinued exercise, 70% reported of SUI even in their postnatal period, 66.66% of experienced problem during coughing / sneezing, 16.66% had problem only during bending, and 16.66% had a strong uncomfortable urge to rush to urinate. 16.66% of the subjects had mixed symptoms, they had problem both during coughing/sneezing and also during bending or while performing other activities as well. But the subjects did not complain of any leakage during undressing or walking briskly. SUI was seen among the postnatal mothers soon after 1 month of delivery to 6 month period of time. The study showed a very strong association ($p=0.00$) between antenatal pelvic floor exercise and the prevention of SUI in the postnatal phase as calculated in table (1). Mode of previous delivery ($p=0.002$) and parity ($P=0.006$) were found to be associating factors for SUI whereas BMI ($p=0.055$) may be considered as an associating factor for influencing SUI. Age and occupation of the subjects appeared to have no association with SUI, as indicated by the results presented in Table (2).

Table 1. Association between antenatal PFME and SUI.

PFME	SUI		Chi-Sq value	P value	Df
	Yes	No			
Yes	0	10	12.7	0.00	1
No	12	5			
Total	12	15			

Table 3 showing association between different variables and SUI.

Variables	Chi-square	P-value
Age group	5.435	0.143
BMI	7.590	0.055
Occupation	5.419	0.367
Parity	10.403	0.006
Mode of previous delivery	12.322	0.002

IV. DISCUSSION

Urinary Incontinence is known to have detrimental effects on quality of life (QOL) in approximately 54.3 % of all pregnant women in four domains: physical activity, travel, social relationships, and emotional health.⁴ PFME have very good evidence for prevention and treatment of the SUI during and after the delivery⁶⁻⁸. Studies have shown that SUI developed during pregnancy or puerperium without remission 3 months after delivery have a very high risk of symptom persistence 5 years later.⁷⁻⁹ This study's findings is consistent with Cochrane review done by Hay smith¹² that showed women who leak urine while pregnant can reduce urine leakage for the first six months after childbirth by doing the exercises during and after pregnancy. All women who continued the prescribed exercises in this study did not have urine leakage after postpartum to the date of survey. PFME can be administered as a preventive measure too even women who do not leak urine during pregnancy.

This study demonstrated that antenatal PFME is effective as a treatment for the prevention of SUI after delivery in postpartum

women. The third trimester pregnant ladies were surveyed and only 34 % were found to have SUI. Among them also only 29.10% of who had SUI admitted that it affects their quality of life. Although the trials produce the good results, the dropout rates were high. 63% of the women who were administered physiotherapy classes and home exercises did not continue their exercise. Most of them said they forgot the exercise, whereas others said it was difficult to take out time from daily life to continue exercise, a scenario similar to the study conducted by Wilson and Herbison's which had a 52% drop out rate¹¹ Another study¹² reported only 6% dropout rate in study where treatment time was much shorter and was under supervision indicating that dropout rate can be controlled through supervised treatment. Here as in our study we taught the exercise once to the patient and told them to continue at home. However, the result of this study matches with results of previous studies as the women who continued exercise did not face SUI in their postpartum period .

Various Studies have shown that supervised antenatal and postnatal pelvic floor muscle training are protective against UI particularly in high-risk groups. However, this beneficial effect did not continue on the long term and novel interventions to improve motivation and adherence are required to achieve better long-term outcome. This study evaluated the benefits of unsupervised PFME only due to limited scope of providing long term supervised PFME and such a study could be the focus of further research.

Therefore, the supervised PFME may be helpful to maximize the adherence among the women but it cannot stop preventing the dropout. Even in previous studies withdrawal from exercise is one of the risks for postnatal complication.¹⁴⁻¹⁵ They reported majority of women experience one or more barriers to regular PFM exercise, with the most common being trouble remembering to exercise and difficulty finding time which is similar finding we got in this study as well. There is little in the characterization of the patient that predicts how well she will adhere to an individualized program of practice and exercise, but trouble remembering appears to be associated with lower adherence.

V. CONCLUSION

Pelvic floor exercise during antenatal phases prevents SUI and improves quality of life. Awareness of the importance of Pelvic floor exercise should be promoted among health professionals, especially in least developed countries like Nepal. It offers an economic treatment and improve quality of life.

APPENDIX

Question asked during Telephone survey

1. Age of Baby
2. Exercise done/not
3. Urine leakage
4. Urine leakage during Cough/Sneez
5. Urine leakage during Bent down/lifting
6. Urine leakage during Walk quickly/ exercise
7. Urine leakage during undressing

- | |
|------------------------------|
| 8. Strong uncomfortable need |
| 9. Need to rush to bathroom |

ACKNOWLEDGMENT

The authors would like to thank department of Obstetric and Gynecology of Dhulikhel Hospital and Dhulikhel Hospital for providing permission to conduct this research and identifying the need for the physiotherapy in different field.

REFERENCES

- [1] A factsheet International Incontinence Society.2013
- [2] Beaulieu, S., Collet, J.P., Tu, L.M., Macrammalla, E., Wood- Dauphinee, S. and Corcos, J.: Performance of the Incontinence Impact Questionnaire in Canada. *Can J Urol*, 6: 692–699, 1999
- [3] Bo, K., Talseth, T. and Holme, I.: Single blind, randomized controlled trial of pelvic floor exercises, electrical stimulation, vaginal cones and no treatment in the management of genuine stress incontinence. *BMJ*, 318: 487- 493, 1999
- [4] Sangsawang B. & Serisathien Y. Effect of pelvic floor muscle exercise programme on stress urinary incontinence among pregnant women.*Journal of Advanced Nursing*. 2012;68(9)
- [5] Natalia P, Rehana D, Simon. R. Jackson “Pelvic floor exercise for urinary incontinence: A systematic literature review. *Maturitas* 67 (2010)309-315.
- [6] Angela D. Thomason. Janis M. Miller .John OL DeLancey. Urinary incontinence symptoms during and after pregnancy in continent and incontinent primiparas. *International Urogynecology Journal*. 2007; 18 :147–151
- [7] Gupta G, Kumar S. Does antenatal pelvic floor muscle training prevent stress urinary incontinence in primi-gravidae? *Indian Journal of Urology : IJU : Journal of the Urological Society of India*. 2009;25(2):279-280
- [8] Erica Schytt, Gunilla Lindmark, Ulla Waldenstrom. Symptoms of stress incontinence 1 year after childbirth: prevalence and predictors in a national Swedish sample. *Acta Obstet Gynecol Scand*. 2004; 83: 928—936.
- [9] Mørkved S, Bø K. Effect of postpartum pelvic floor muscle training in prevention and treatment of urinary incontinence: a one-year follow up. *BJOG*.2000 Aug;107(8):1022-8.

- [10] Ayten Dinc & Nezihe Kizilkaya Beji & Onay Yalcin. Effect of pelvic floor muscle exercises in the treatment of urinary incontinence during pregnancy and the postpartum period.*Int Urogynecol Journal*. 2009; Vol 20:1223–1231
- [11] Wilson PD,Herbison GP.A randomize controlled trials of pelvic floor muscle exercise to treat post-natal Urinary Incontinence. *International Urogynecol J*.1998;9:257-64) .
- [12] Dumoulin C, Hay- Smith J “Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women.” *The Cochrane library* 2010, Issue 1.
- [13] Dumoulin C.et.al. Physiotherapy for persistent postnatal SUI:A RCT. *American College of OBG*.2004;104-3
- [14] D. Borello- France, L.Kathryn Burgio, Patricia S. Goode, Wen Ye, Alison C. Weidner, Emily S. Lukacz, Cathie Spine “Adherence to Behavioral Interventions for Stress Incontinence: Rates, Barriers, and Predictors” *Phys Ther*. 2013 Jun; 93(6): 757–773.
- [15] D. Alewijnse “predictors of long –term adherence to pelvic floor muscle exercise therapy among women with urinary incontinence.” *Health Education Research* 2003 Vol.18 no.5.

AUTHORS

First Author – Bimika Khadgi, MPT, Kathmandu University School of Medical Sciences (KUSMS) and bimikakhadgi@kusms.ku.edu.np.

Second Author – Lata Shrestha, BPT, KUSMS and buddhasumi@gmail.com.

Third Author – Shrinkhala Shrestha, MPH, Health, KUSMS and Shrinkhalabarun@gmail.com

Correspondence Author: Bimika Khadgi, Department of physiotherapy,Dhulikhel Hospital/ Kathmandu University Hospital, Kathmandu university school of medical sciences, Dhulikhel, Kavre, Nepal, Fax: 00977-11-490707, Ph No: 00977-9841652528, 00977-11-490497, www.kusms.edu.np bimikakhadgi@kusms.ku.edu.np