



"A STUDY OF EFFECT OF PELVIC FLOOR MUSCLE EXERCISES ON QUALITY OF LIFE IN FEMALES WITH STRESS INCONTINENCE"

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ABSTRACT

The study was done to assess the impact of isolated Pelvic floor muscle (PFM) exercises and combined training of the PFM and the m.transversus abdominis (TrA) muscle on the quality of life (QoL) of patients with stress urinary incontinence (SUI) with regard to the number of vaginal deliveries.

Materials and methods: 100 women with SUI were studied in department of OBGY to assess the effectiveness of PFM training for groups A (PFM+TrA) and B (PFM) for 12 weeks.

Results: The analysis demonstrated that conservative treatment based on the A training program (PFM + TrA) yielded statistically significantly better results than the B program (PFM), with the improvement observed in such QoL domains as the performance of household duties, physical activity and travelling, social limitations, emotions, sleep problems and fatigue, the frequency of changing panty liners, fluid intake control, and embarrassment.

Conclusion: The exercises for the PFM and the synergistic muscle give better results in women who have given birth fewer than three times than isolated PFM exercises.

KEYWORDS

stress incontinence

INTRODUCTION:

Urinary incontinence simply implies unintentional loss of urine. When it happens due to stress on the pelvis muscles, bladder etc its called as stress incontinence. Here, the stress is not psychological stress but is actual physiological stress. Any condition which increases intraabdominal pressure can cause stress incontinence. Its more common in women. Coughing especially prolonged coughing, smoking, obesity, long history of vigorous activities or sports involving jumping etc and vaginal delivery can predispose to stress incontinence. It may cause great embarrassment to females as they sort of leak urine unintentionally even during sex hence many have low confidence. Some women wear diapers or pads for this. This condition should not be confused with overactive bladder or urgency incontinence as all are different entities.

Despite the mechanisms of tissue regeneration in this area, researchers indicate reduction abilities of female bodies after three or more deliveries compared with those of nulliparous and women who have given birth only once [1]. The greatest recruitment of the motor units of the PFM is noted in nulliparas, then primiparas, women after C-section, women after vaginal delivery, and finally climacteric and postmenopausal women [2].

Positive results, patients achieve only after about 6-8 weeks of regular exercises and are manifest themselves in a higher assessment of the QoL [3]. Some researchers indicate the possibility of combining exercises for the PFM and the TrA muscle. According to Stapsford, the TrA muscle is a synergistic muscle, showing natural activity during PFM contractions [4].

The total score ranges from 19 to 76 points. The ICIQ-LUTSqol has been developed on the basis of King's Health Questionnaire (KHQ) [5, 6].

The aim of this study was to assess the impact of isolated PFM exercises, and combined training of the PFM and the TrA muscle on the QoL of patients with SUI with regard to the number of vaginal deliveries.

METHODOLOGY

A total of 100 patients were selected by simple random sampling based on the urodynamic test results, questionnaire and gynecological examination indicating stage 1 SUI at the Department of Gynecology in tertiary hospital in India.

The criteria for inclusion in the study were stage 1 SUI without urinary urgency, the 45-60 years age-bracket, at least one vaginal delivery, and patient's written consent to take part in the study. The criteria for

exclusion from the study were higher stage SUI, types of urinary incontinence other than SUI and prolapse according to the Pelvic Organ Prolapse Quantification (POP-Q) system

The patients (n = 100) were assigned to two groups by a computer draw—group A (n = 50) and group B (n = 50).

The initial and final QoL assessments were performed by means of the ICIQ-LUTSqol, developed on the basis of the KHQ. This standardized validated questionnaire includes questions concerning such spheres of life as the performance of household duties and outside home activities (Q3), physical limitations (Q4a), social limitations (Q4b), interpersonal limitations (Q5), emotions (Q6), languidness and vitality associated with urinary incontinence (Q7), the performance of such activities as: changing panty liners, restricting fluid intake, changing wet underwear (Q8), and embarrassment (QW). When completing the questionnaire, patients tick one of the four answers: not at all (1 point), a little (2 points), moderately (3 points), and very (4 points). The possible scores range from 19 to 79 points. The scores for this questionnaire were calculated in accordance with the guidelines described in Keller's article, following the example of the base questionnaire—the KHQ—calculation principles [7]. SPSS 17 was used for statistical analysis and appropriate tests were applied.

RESULTS:

A total of 100 patients were studied showing the demographic characteristics as shown in Table 1.

Tables:

Table 1 Demographic profile of our patients

	Group A	Group B	P value
Age in years	53.2 ±5.4	53.1±5.6	0.813*
BMI	25.3 ±2.7	25.2 ±3.1	1.0*
No. of vaginal deliveries			0.492
Group 0 (<3)	33	35	
Group 1 (≥3)	17	15	
Place of residence (%)			0.842
City	73.6	75.2	
Village	27.4	24.8	
Physical activity (%)			0.616
Sitting	11.8	17.8	
Active	31.2	26.5	
Mixed	57.0	55.7	
Menopausal status (%)			0.09
Before	46.1	62.4	
After	57.9	37.6	

Smoking (%)			0.8
Yes	12.9	12.3	
no	87.1	87.7	

Table 2 shows the impact of an interfering factor (the number of vaginal deliveries) on the results of conservative treatment applied in women with stage 1 SUI according to the A training program (PFM + TrA) and the B training program (PFM). The significance of differences in the treatment results between the groups was analyzed in order to estimate the impact of this factor.

Table 2 showing Results of our patients

Score	Groups	NVD Group 0 (<3) Group 1 (≥3)	X ± SD	Test post hoc Turkey P value
Q3	A	0	18.3 ± 20.2	0.025
		1	11.2 ± 19.3	0.789
	B	0	30.1 ± 20.2	0.935
		1	33.2 ± 21.2	0.964
Q4a	A	0	19.8 ± 15.2	0.010
		1	11.1 ± 9.7	0.442
	B	0	32.7 ± 20.9	0.892
		1	41.8 ± 25.3	0.807
Q4b	A	0	6.7 ± 9.8	<0.001
		1	11.2 ± 0.0	0.848
	B	0	21.6 ± 15.8	0.999
		1	27.7 ± 25.1	0.313
Q5	A	0	14.8 ± 25.3	0.482
		1	16.8 ± 16.7	0.638
	B	0	24.3 ± 25.5	0.999
		1	22.5 ± 22.1	0.810
Q6	A	0	11.5 ± 14.4	<0.001
		1	7.7 ± 6.4	0.708
	B	0	27.9 ± 19.6	0.999
		1	29.5 ± 33.5	0.139
Q7	A	0	19.7 ± 20.1	0.006
		1	22.2 ± 19.2	0.963
	B	0	33.8 ± 19.5	0.624
		1	38.8 ± 13.6	0.997
Q8	A	0	24.7 ± 17.9	<0.001
		1	11.2 ± 12.7	0.125
	B	0	42.5 ± 17.5	0.997
		1	48.8 ± 15.3	0.687
QW	A	0	14.8 ± 21.1	0.034
		1	11.2 ± 19.2	0.685
	B	0	30.3 ± 26.4	0.991
		1	44.9 ± 23.1	0.996
Sum of scores	A	0	115.8 ± 87.6	<0.001
		1	91.7 ± 13.1	0.111
	B	0	213.8 ± 88.1	0.999
		1	267.9 ± 113.5	0.970

The analysis of the sum scores of the ICIQ-LUTSqol revealed that a statistically significant change was only reported by the women who had given birth naturally fewer than three times (group 0) and who applied the A training program (PFM + TrA).

DISCUSSION:

The pelvic floor has numerous functions in a female body and its weakness causes urinary incontinence which simply implies unintentional loss of urine. When it happens due to stress on the pelvic muscles, bladder etc its called as stress incontinence. Here, the stress is not psychological stress but is actual physiological stress. Any condition which increases intraabdominal pressure can cause stress incontinence. Its more common in women.

We assumed that the number of vaginal deliveries ≥ 3 contributes to the insufficiency of the true pelvic floor, including SUI in the perimenopausal period. This hypothesis is supported by numerous studies describing the connection between urinary incontinence and the number of deliveries. In the study of Lassere et al. [8] the odds ratio for women delivering more than three times was 4.1 and for women delivering only twice 3.0. Also the results obtained by Özdemir et al. [9] are worth mentioning. These authors analyzed 233 women with urinary incontinence in terms of their QoL and the PFM strength. They found that higher numbers of natural childbirths entailed statistically

significantly decreased QoL and worse PFM function.

In our study, the numbers of deliveries in the groups were as follows: women after ≥ 3 vaginal deliveries constituted 22% of group A and 17% of group B. The women after < 3 deliveries were substantially more numerous and constituted 78% of group A and 83% of group B.

Tukey's *post hoc* test demonstrated significance only in the group of women who had given birth fewer than three times (group 0). The A training program (PFM + TrA) was significantly more effective than the B training program (PFM) only in this group of women. It should be emphasized that the training was only recommended for the PFM. The analysis of other domains of the KHQ, employed by these researchers, shows that despite a small number of deliveries in the studied groups, significant improvement was only observed in the abovementioned domain and the domains of emotions (Q6), sleep problems (Q7), and the frequency of changing panty liners, restricting fluid intake, and changing wet underwear (Q8).

The results described by Hirakawa et al. [10], who compared the effectiveness of classic PFM exercises and PFM exercises combined with biofeedback therapy in 46 women with SUI, show a different distribution of statistically significant differences in the QoL domains.

CONCLUSION:

The results presented in our study show that in the case of patients who have delivered fewer than three times, the A training program (PFM + TrA) is significantly more effective than the B training program (PFM). This confirms that the number of deliveries contributes to the effectiveness of the training.

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