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CHANGES OF PELVIC FLOOR MUSCLE STRENGTH BEFORE AND AFTER NORMAL VAGINAL DELIVERY

Hypothesis / aims of study

Urinary incontinence is a common problem which affects women not only on their physiological health but also on their mental health. Pregnancy and vaginal delivery, represent the key physiological events predisposing to urinary incontinence. This study was to investigate the effect of pregnancy and vaginal delivery on pelvic muscle contraction function and check whether returned compared with antepartum in the pelvic floor muscle strength had already taken place by the time of 6 weeks and 3 months postpartum

Study design, materials and methods

This was a prospective observational study of 49 primiparous women [median age 25.2 years (range 22-30 years)] without episiotomy and other risk factors for postpartum urinary incontinence (PPUI). Each woman underwent pelvic floor strength assessment by manometry at 38 antepartum weeks and at 6 weeks and 3 months postpartum. Pelvic floor strength assessment consisted of Vaginal resting pressure(VRP), vaginal squeezing pressure (VSP), duration time of pelvic floor muscle contraction(DT). International Continence Inquiring Committee's Questionnaire scores were recorded the incidence of PPUI. VRP, VSP and DT results were analyzed using repeated measures ANOVA. The incidence of PPUI was analyzed by chi square test.

Results

The pelvic floor muscle strength at 3 time stages are summarised in Table1.

Table 1: Pelvic floor muscle strength at 3 time stages

	Time stages			P value		
	Antepartum	Postpartum				
	38 wks (T_1)	6 wks (T_2)	3 mons (T_3)	T_1 vs T_2	T_1 vs T_3	T_2 vs T_3
VRP(cmH_2O)	30.59 ± 6.26	25.69 ± 7.11	27.92 ± 5.62	0.000	0.039	0.085
VSP(cmH_2O)	33.82 ± 11.66	24.84 ± 9.99	29.31 ± 10.35	0.000	0.039	0.040
DT(s)	5.45 ± 1.74	3.29 ± 1.34	4.59 ± 1.50	0.000	0.007	0.000

Interpretation of results

Pelvic floor muscle strength at 6 weeks postpartum was significantly lower than 38 antepartum weeks(VRP: 25.69 ± 7.11 *vs* 30.59 ± 6.26 cmH_2O; VSP: 24.84 ± 9.99 *vs* 33.82 ± 11.66 cmH_2O; DT: 3.29 ± 1.34 *vs* 5.45 ± 1.74 s, $P<0.01$ or $P<0.05$). The VSP (29.31 ± 10.35 cmH_2O)and DT (4.59 ± 1.50 s) at 3 months postpartum was significantly higher than 6 weeks postparturm respectively ($P<0.01$ or $P<0.05$). The muscle strength at 3 months was significantly lower than 38 antepartum weeks ($P<0.01$ or $P<0.05$). The incidence of postpartum urinary incontinence at 6 weeks and 3 months postpartum was 14.29% and 8.16% respectively, not show any significant differences.

Concluding message

Pregnancy and vaginal delivery can damage the function of pelvic floor muscle. This change occur shortly after vaginal birth. 3 months after delivery may be apparently rather early to observe a completely spontaneous functional recovery of the pelvic floor muscle.

This study suggests that irrespective of lack of symptoms of urinary incontinence, it would appear advisable that all women should undertake a prescribed programme of pelvic floor rehabilitation exercises after childbirth. In order to advance the strength and endurance of pelvic floor muscle, postpartum pelvic floor rehabilitation should be advocated.

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Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**