

Effectiveness of core stabilization exercises along with postural correction in postpartum back pain

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Objective: To determine effectiveness of postural correction along with core stabilization exercises in post partum back pain.

Methodology: A randomized control trial was conducted during 2011-12 in one of the public hospital of Rawalpindi. Two groups included twenty subjects in each one through randomization. Experimental group was treated with core stabilization exercises along with postural correction while control group with simple back strengthening exercises. Two treatment sessions per day to the postpartum women who underwent lower segment caesarian were given for 3 days during their hospital stay. Subjects who underwent spontaneous vertex delivery were

given two sessions per day. Follow up sessions for 40% were conducted in a hospital on the other hand 60% over the phone. Data was analyzed by SPSS Version 17.

Results: 60% subjects responded to core stabilization exercises and postural correction while 40% to back strengthening exercises only (P=0.001).

Conclusions: Core stabilization exercises and postural correction are effective techniques in the management of postpartum back pain. (Rawal Med J 2013;38: 256-259).

Keywords: Physiotherapy, core stabilization exercises, back strengthening exercises.

INTRODUCTION

Postpartum back pain in women who just gave birth usually happens when the abdominal muscles are weakened and the stability of the lumbar spine is compromised with inability to support the weight of her body.^{1,2} In rare circumstances, the coccyx bone can be fractured during a forceps delivery.³ This pain could be induced due to various factors some of them are muscle strain, coccyx pain, sedentary lifestyle, bad posture and hormonal factor. Post partum rehabilitation of the associated lumbo-pelvic musculature with specific stabilization exercises is recommended to reduce pain, improve long term outcomes and prevent chronicity.⁴

Postpartum pain focused on the importance of two muscles, **transverse abdominus (TA)** and **multifidus (MF)**. This is because both of these muscles lie deep in the spine, forming the functional core of the body. The multifidus muscle stabilizes the joints at each segmental level of the spine to enhance core stability of back muscles. In pregnancy related back pain, these two muscles are weakened, if these problems are not addressed,

chances for recurrence of back pain would be increased.⁵

In the past postpartum low back pain managed through back strengthening exercises. However some studies also indicate that core stabilization exercises are helpful for those with chronic back pain or weak abdominal muscles.⁶ *Core stability is essential for proper load balance within the spine, pelvis, and kinetic chain.*⁷ Common core exercises include squats, pushups, sit-ups and crunches among others; *incorrect posture also contributes in postpartum low back pain, proper posture improves the condition and relief the pain. In the balance posture, mainly focus is on good sitting posture, with back flat, head up, shoulders back and stomach in.* Posture correcting exercises strengthen the muscles. These exercises include cervical retraction, breastbone lift, and shoulder blade squeeze, abdominal pull-in are some common exercises. The aim of this study was to determine effectiveness of postural correction with core stabilization exercises in post partum back pain.

METHODOLOGY

A randomized control trial was conducted during 2011-12 in one of the public hospital of Rawalpindi in collaboration with Department of Gynecology and Obstetrics. Forty postpartum women were selected through non-probability sampling technique. Two groups were formed and twenty subjects were included in each one through randomization. In Experimental group, postpartum women were treated with core stabilization exercises along with postural correction in different positions i.e. supine, crook lying and half sitting position & prone position. First three sessions were given in hospital & treatment time was half an hour. Afterwards, the subjects were called for follow up session in OPD and 30 to 40 minutes treatment sessions were given. In control group, women were treated with simple back strengthening exercises in different positions i.e. supine, crook lying position. First 3 to 4 session were performed in hospital for 30 minutes, after that patients called to OPD for further follow up to evaluate back pain after lower segment caesarian section (LSCS)

Two treatment sessions per day to the postpartum women who underwent LSCS were given for 3 days during their stay at hospital. Subjects who underwent spontaneous vertex delivery were given 2 sessions per day before they discharged from hospital. There was no loss of follow ups as 40% of follow up sessions were conducted in hospital on the other hand 60% over the phone.

Data was collected through structured proforma. The Scale used for backache is visual analogue scale (VAS). Variables used were age, occupation, mode of delivery, restriction in Activities of Daily Livings (ADLs), Instrumental Activities of Daily Livings (IADLs), Muscles power, mobility, pedal edema. Data was analyzed by SPSS Version 17.

RESULTS

78% (31) of the participants was between the age group of 20-30 years while 22% (9) were of 31-40 years of age and 77% of them were housewives. 65% (26) mothers had children between 1-2, while 32.5% (13) mothers had between 3-4 children and only 1 mother had kids above 5. 35% (14) subjects

had spontaneous vertex delivery, while 63% (25) LSCS, only one mother had D&C.

Table 1: Measuring Restriction in ADLS & IADLS.

Variable	Baseline Frequency (%)N=40	Experimental Group N=20	Control Group N=20	P-value
Activities of daily livings	32 (80%)	4(20%)	7 (35%)	
Instrumental Activities of Daily Livings	8 (20%)	2(10%)	4 (20%)	0.001

52% (21) had mild postpartum back pain, while 40% (16) and 8% (3) had moderate and severe pain, respectively. 80% (32) subjects found difficulty in ADLS, while 20% (8) mothers had difficulty in IADLS; these improved significantly in experimental group as compare to the control group (Table 1).

Table 2: Measuring Muscle power.

	Baseline Frequency (%)N=40	Experimental Group N=20	Control Group N=20	P-value
Against gravity	12 (30%)	5(25%)	4(20%)	
With min resistance	23 (57%)	13(65%)	10(50%)	0.001
Max resistance	5(13%)	12(60%)	6(30%)	

By comparing muscles power of lower limbs, approximately 12 subjects (30%) had muscle power of grade 3 while 23 subjects (57.5%) had muscle power of grade 4 and five (12.5%) subjects had 4 grade on manual muscle testing (MMT), Table 2 shows statistically significant (P=0.001) improvement in muscle power in experimental group as compare to controls.

Table 3: Measuring Mobility.

	Baseline Frequency (%)N=40	Experimental Group N=20	Control Group N=20	P-value
Dependant	11(27%)	3(15%)	8(40%)	
Independent	29(73%)	17(85%)	12(60%)	0.0001

At baseline, mobility measurements showed 11(27.5%) were dependent, while 29 (72.5%) were independent in the context of mobility. Table 3 shows marked improvement in mobility of experimental group after introducing core stabilization exercises and postural correction as compared to control group. Experimental group showed improvement in edema although p-value was insignificant.

DISCUSSION

Our results showed significance of these exercises to all of these subjects. Breen et al reported that the overall incidence of back pain 1-2 months post partum in this population was related to predisposing factors like previous history of back pain, younger age, and greater weight. They showed that core stabilization exercises and postural correction resulted in improvement.⁸ Macarthur et al also showed that postpartum low back pain was common and decreased considerably over the time with the help of core stabilizing exercises.⁹

Turgut F et al reported that pregnant women with a previous history of back pain had higher prevalence of back pain especially in young multi gravid patients, which could be managed efficiently through core stabilizing exercises, other studies also strengthen the evidence¹⁰⁻¹² and validate our findings. A study on 402 subjects with postpartum lower back pain showed improvement with core stabilization exercises+ postural correction and back strengthening exercise.¹³

Nadler et al in post partum low back pain in collegiate athletes found no significant advantages of core strengthening in reducing pain.¹⁴ However, other studies showed core Stabilizing exercises to be effective.¹⁵⁻¹⁸ Limitation of the study was small sample size. For this reason, more research is needed with large sample size.

CONCLUSION

Core stabilization exercises and postural correction were an effective technique in postpartum back pain. Core stability exercises are better than other forms of exercise in preventing injury and reducing chronic post partum lower back pain.

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