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A STUDY TO INVESTIGATE THE ROLE OF PELVIC FLOOR MUSCLE IN CHRONIC NONRESPONSIVE BACKACHE IN FEMALES

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ABSTRACT

Background: Chronic low back pain remains a major health problem. Unfortunately, the majority of treatments for this condition produce small effects because not all patients respond to each treatment. It appears that only 25–50% of patients respond to exercise. At present, however, there are no guidelines regarding the best treatment to help clinicians. As a result, time and money are wasted on treatment which ultimately fail to help the patient. A backache is described as annoying and gripping pain. It can be caused by poor posture, lack of manual handling skills, change in the center of gravity due to expanding abdomen, lack of exercise, or the weight of the baby and the stretching ligaments. Pelvic floor muscle weakness is one of the major cause of chronic backache. Weakness in the pelvic floor muscles is common in females which can lead to debilitating urinary symptoms, affect sexual function and cause chronic backache.

Methodology: In 3 months, 31 female subjects with mean age of 28 who had taken treatment for their chronic backache, were improvised with pelvic floor strength at our setup, with dramatically good results. 31 subjects with non-responsive chronic back pain who had taken conventional physiotherapy were included in the study. Both married and unmarried were included. Any sign of radiculopathy or inflammation were excluded. After assessing pain using Visual Analogue Scale, the Dr Glazer's program and Kegel's contractions were taught.

Results: There was significant improvement by 50% on reassessment after 7 days. Then exercises for transverse abdominals were included to get a better response. On completion of the treatment sessions, reduction in pain was 92% on VAS and functional abilities increased by 89%. There was a significant improvement in the quality of life and in pelvic-floor muscle strength.

Conclusion: Non-responsive chronic back pain in females when treated with pelvic floor muscle strengthening program showed 40% improvement. This can be implemented in routine practice for the benefit of the patients.

Keywords: pelvic floor muscles, pelvic floor strengthening, back ache.

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INTRODUCTION

A backache is generally a gripping pain near the inward curve of the back above the base of the spine. Backaches can be particularly annoying [1]. It can be caused by poor posture, inappropriate lifting techniques, change in the center of gravity due to your expanding abdomen, lack of exercise, or the weight of the baby and the stretching ligaments [2]. Among the third to fifth decade of life, backache is common [3]. It is described as a pain or ache somewhere between the bottom of the ribs, at the back, and the top of the legs [4]. The lifetime prevalence has been estimated to be 59% to 90%. In any one year, the incidence of back pain is reported to be ~5% of the population.

The main function of the pelvic floor muscles are to support the internal organs located in the abdomen. Studies suggest that pain in the sacroiliac region may decrease motor control of the pelvic floor muscles [5]. Deconditioning of pelvic floor begins as early as the late teens and progressively worsens. Those who did not have children, child birth overstretching and subsequent lack of exercise made things worse as it involves anatomical, physiological, genetic, reproductive and lifestyle components and need for postpartum exercise is even more important [6,7]. When vaginal muscle atrophy occur, weak pelvic floor muscles cannot support the reproductive organs and over time, these organs drop lower in the body causing low back discomfort and pain. The muscles of the pelvic floor do not have enough integrity to support the pelvic organs. This may result in loss of urine with coughing, sneezing, or lifting. Pelvic pain may also occur with walking or exercise [8].

The supporting structures of the pelvic floor are also influenced by fluctuating hormones both during the menstrual cycle and pregnancy [9]. Because of heterogeneity and the varying quality of the studies, no strong evidence exists concerning the effect of physical therapy interventions on the prevention and treatment of back and pelvic pain related to pregnancy [10]. Women having a vaginal delivery are even more at risk of developing pelvic floor muscle dysfunction, particularly if they have a large baby (>4kg), have a very quick (< 15 minutes) or very long (>1 hour) 'pushing' stage of labor, or have a forceps delivery. It is essential that after childbirth, all women carry out a regular daily program of pelvic floor muscle exercises for at least three months following delivery.

The National Institute for Health and Clinical Excellence (NICE) guidelines for the management of urinary incontinence in women (NICE, 2006) reviewed the available evidence from randomized controlled trials with regard to pelvic muscle exercises and concluded that at present, the minimum successful regimens included at least eight pelvic floor muscle contractions repeated three times per day [11]. Patients should be encouraged to train the endurance of the muscles by performing slow sustained contractions and holding them for 10 seconds for 10 repetitions. This phenomenon is known as PNF, proprioceptive neuromuscular facilitation.

In Dr. Glazer's method, surface electromyography feed-

back is required by means of an internal vaginal or anal sensor. This equipment cannot be used due to many social problems. Dr. Glazer's method is used to educate regarding voluntary pelvic muscle contractions, with intervening rest periods.

Kegel's exercise is an isometric program design to strengthen pubococcygeus.

As mentioned earlier, this muscle contain both type of fibers, exercise should be performed to improve muscle's resting tone (slow twitch) and its rapid reflex contraction (fast twitch) during sudden episodes of increased intraabdominal pressure i.e. sneeze and cough. Various literature reviews have confirmed that there is a positive influence on back ache with pelvic floor strengthening exercises.

METHODOLOGY

The subjects were selected randomly in the outpatient department of Holy Family hospital. 31 subjects aged between 25 to 35 years with chronic back pain were included in the study. Through random convenient sampling, patients were taken for assessment using questionnaire. Informed consent was taken from the subjects before being interviewed in a private hospital based in Sadar offering primary, secondary and tertiary level services. Exclusion criteria involved subjects above 35 years or below 25 years with radiating pain to unilateral or bilateral lower extremities, inflammatory conditions, degenerative joint diseases, tumors, acute symptoms of back pain and fractures.

PROCEDURE

Baseline measures were taken for 31 subjects prior to the intervention. They were taught pelvic floor exercises. Simple, clear instructions were given to the subjects.

Dr Glazer's program: He introduced accessory augmented pelvic floor contractions to enhance the rehabilitation of pelvic floor and anal muscles in the treatment of urinary incontinence, detrusor instability, vulvodynia, interstitial cystitis, levator ani syndrome, pelvic pain and similar syndromes. He trained patients to use accessory muscles (abdominals, hip rotators and adductors) until they felt an actual lift of the pelvic floor. Once patient able to sustain pelvic contraction accessory muscles could be dropped out. In this way a pure pelvic contraction could be compared. This phenomenon is known as proprioceptive neuromuscular facilitation. Dr Glazer's method was used only to educate patient regarding the actual contractions of the pelvic floor muscles.

Exercise 1

Tighten muscles around the pelvis as if trying to stop passing wind between the inner thigh. Ask the patient not to pull the tummy (abdominal contraction), not to squeeze your legs (adductors contraction) not to tighten your buttocks (gluteal contractions) not to hold your breath. Try to hold the contraction of pelvic floor for maximum of 10 seconds, rest for 4 seconds and then repeat for ten times, six times a day. Effort should come from isolated pelvic floor. Patient should to try these exercises in a slow and controlled manner.

Exercise 2

Practice some quick contractions, drawing in pelvic floor and hold for just 1 second, thereby improving the ability to

react in sudden stresses. Ask the patient to follow exercise 1 and 2 alternatively six times a day.

The focus of the exercises is given to the vertical abdominals and rectus abdominus which leaves out the transverse abdominals completely. These muscles do not benefit from crunches which are a main part of routines for the abs. Transverse abdominals join the muscles of the lower back to the rectus abdominus providing support for abdomen.

RESULTS

The recovery rate of 11 patients who were treated with Short Wave diathermy; Ultra Sound, Transcutaneous Electrical Nerve Stimulation; exercises was 53.67% in mean of 8.72 days.

The modalities such as short wave diathermy, ultra sound, TENS, hot packs and cryotherapy were used. Patients performing aerobics and treated with Short Wave diathermy, Ultra Sound, was 50% in mean of 8.66 days. The recovery rate of 10 patients who were treated with hot packs, Transcutaneous Electrical Nerve Stimulation was 35% in mean days of 5.1.

The recovery rate of 4 patients who were treated with Short Wave diathermy & Transcutaneous Electrical Nerve Stimulation was 35% in mean of 6.25 days. The recovery rate of 1 patient who was treated with cold packs and aerobics was 25% in mean of 6 days. The recovery rate of 2 patients who were treated with Short Wave diathermy, exercises was 37.5% in mean of 12.5 days. After following the exercise program, the patient improved by 95%. Reduction in pain was 92%. Time of sitting improved by 73.2%. Time of standing increased by 81.6%. Functional abilities improved by 89%.

The p-value is 0.0005. The level of significance is α 0.05. $p < \alpha$. By using related t test on the data ($t=3.88$, $N = 31$) the results are significant at $p < 0.05$, for a one tailed test. t Critical one-tail is 3.646. The experimental hypothesis has been supported, suggesting that pelvic floor muscle exercises is more effective in reduction of pain in chronic non responsive low back pain. The null hypothesis therefore is rejected.

DISCUSSION

Most people with chronic low back pain are considered to have 'non-specific' low back pain, that is, they have no definitive structural diagnosis. It is a widespread clinical belief that it is possible to use clinical features to identify sub-populations of patients with non-specific low back pain who respond differently to treatment. At present there is no similar rule for exercise treatment of chronic low back pain. According to Smith M, Disorders of breathing and continence have a stronger association with back pain than obesity and physical activity [12].

The motivation behind this study was to find a permanent solution for women suffering from nonspecific chronic back pain which leads to poor quality of life and reduce level of activity. Patients who are taking treatment prior to the study were also included in the study. There was no marked improvement in them. The results of those treatments are SWD, USD, TENS, EXE 53.67%; SWD, USD 50%; HOT PACKS TENS 35%; SWD & TENS 35%; SWD & EXE 37.5%; COLD PACKS AEROBICS 25%. Impor-

tance of pelvic floor muscle: A loss of the support function in the pelvic floor muscles is common in females and can lead to debilitating urinary symptoms. Problems with the pelvic floor can also affect the sexual function of both male and females. Typically the pelvic floor muscles have a combination of tone, strength, and control. Pelvic Floor Tone means the density of the tissue. This is very different than the strength which means the power of the muscle. Control is referred to as quality of movement. When the any of these three aspects of the pelvic floor is disrupted, pelvic floor dysfunction will occur.

Hip, back, abdominal, pelvic, or vaginal pain may result from improper muscle length/ tension of the pelvic floor (levator ani). If there is pelvic floor spasm, the bladder may not void urine properly due to the urethra opening passing through the pelvic floor. Pregnancy also places a greater load on the pelvic floor muscles as the weight of the baby and mother increase and there is evidence that the changes that occur during pregnancy can cause pelvic floor muscle dysfunction even before the mother gives birth [13] (Lal et al, 2003). This means that women who give birth by caesarean section still need to take care of their pelvic floor muscles after the baby is born.

Women having a vaginal delivery are even more at risk of developing pelvic floor muscle dysfunction, particularly if they have a large baby. Once weakened, because the female pelvic floor muscles are under the influence of the woman's hormones, symptoms may appear in association with the menstrual cycle, often appearing to worsen mid-cycle or just before menstruation. Many women notice a significant deterioration in symptoms around the time of the menopause – this is often the trigger for them to finally seek help. The pain is sometimes accompanied by a tingling sensation or numbness in the back or buttocks or leg [14]. The function of the pelvic floor muscles, bladder and bowel may also be affected by chronic constipation, chronic cough or abdominal surgery, for example, following a cholecystectomy (gall bladder removal) or hysterectomy [15]. Deconditioning may start at age of 30 because human postures are upright and strengthening is necessary. Surprisingly, the results were positive in 5 days after commencing the intervention.

CONCLUSION

Non-responsive chronic back pain in females if treated with pelvic floor muscle strengthening along with the standard therapy protocols showed 40% improvement. It would be beneficial for patients in routine clinical practice.

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