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The Efficacy of the Waterford Back Care Programme for Patients with Chronic Low Back Pain

Prathiba.Satyala MPTCardio-Pulmonary Sciences, Assistant Professor, Sandhya Institute of Physiotherapy and Rehabilitation,

Arul Mozhi, MPT Neurology, Associate Professor.

Abstract: *In today's society, back pain is one of the most prevalent and fastest growing reasons for work loss, health care use, sickness benefits, long-term incapacity, worker's compensation and early retirement Positive changes were found in majority of patients on completion of the WBCP. The mean change in VAS is 3.2, RMDQ is 5.6, and 50 foot walk test is 2, while is clinically important difference. A reduction in disability following exercise programs has been reported in a number of previous studies. Almost more than 2/3rd of people (83%) improved there functional performance post programme.*

Key words: *society, supine, prone, machines*

Introduction:

In today's society, back pain is one of the most prevalent and fastest growing reasons for work loss, health care use, sickness benefits, long-term incapacity, worker's compensation and early retirement[1-3]. Some guidelines recommend supervised exercise therapy as a first line of treatment in the management of chronic low back pain (CLBP)[4]. They advocate the use of exercise programmes that do not require the use of expensive training machines. However, no recommendations have been given on the specific type of exercise which should be undertaken. The Occupational Health Guidelines[5] advises the continuance of ordinary activities of daily living as normally as possible despite the pain.

A systematic review by Van Tulder et al[6] concluded that exercise therapy was not found to be effective for acute LBP patients but may be helpful for CLBP patients. There is evidence that exercise therapy can decrease pain intensity and disability in CLBP patients[6-15]. Group exercise interventions are proven to be a very effective conservative treatment for improving the functional performance in CLBP patients[6-9, 12, 13]. Group instruction in physiotherapy for low back pain is safe, generally successful, and highly acceptable to patients[15]. Programme supervision is thought to play a part in enhancing exercise compliance[16].

Despite the known efficacy of exercise in the managementof CLBP, it is important that newly developed programmes are evaluated. The Waterford Back Care Programme (WBCP) was established in 2001 which consists of LBP screening with structured exercise and education programme for patients with non-specific LBP of greater than six weeks duration. The aims are to help the gain the knowledge and skills necessary to reduce back discomfort and improve function, to provide them with

an independent exercise programme and to eliminate waiting periods for specialized care.

Methodology

This is a pre-post experimental study of the WBCP. The study was conducted at physiotherapy department of Sadhya Institute of Physiotherapy and Rehabilitation with consultation of concerned authority. The patients were selected by purposive random sampling method.

Inclusion criteria:

Non-specific CLBP of greater than 6 weeks duration, Age group: 18-20 years, males, physically and mentally stabled patients.

Exclusion criteria:

Medico- legal cases, vascular and neurogenic claudication, recent violent trauma, significant neurological compromise, severe rheumatological disorder, inflammatory disorder of spine, neoplasm and inflammatory disorders.

Intervention:

Patients attended 90 minutes group exercise daily and education sessions over 6 weeks and then followed an individual prescribe home exercise programme independently for further 4 weeks. All patients receive the Waterford back care manual[17] containing general educational information, instruction in each exercise and its progression and a home exercise log.

There were 10 patients per group and the total 30 patients, who completed the programme between Jan 2009 to June 2009.

Core stability training can be given in supine, prone, sitting and also in standing position. The Foam roller and Swiss ball used to strength the core muscles. Foam roller exercise in supine which include shoulder release, scissor arms, chest flye, arm circles, pelvic tilt knee raise, wall walking, bridging. In prone, scapular stabilization and kneeling abdominal raise were trained. Seated hamstrings stretch, gluteal stretch and pectoral stretch also performed with the help of foam roller. The Swiss ball training included seated posture, seated scissor arms, scissor arms with knee raise, supine curl up, prone balance position, abdominal raise with leg lift and swimming also taught. Pectoral stretch, back stretch, prone flye and standing squats also included in Swiss ball training.

Exercises for transverse abdominus were conducted in 4 levels (1A, 1B, 2A, 2B). The level 1A exercise include front lying abdominal raise, leg slides and arm circles. The level 1B exercises include kneeling abdominal raise and kneeling leg and arm raise. The level 2A includes toe touch, knee roll and single leg stretch. The level 2B includes modified plank exercise. Strengthening exercise includes for abdominals, glutei, quadriceps and back muscles. Basic kegeal's, fast kegeal's, slow kegeal's, sustained kegeal's and progressive kegeal's exercises taught for pelvic floor muscles strengthening.

Walking, cycling and swimming also encouraged for 30-40 minutes 4 times per week, as a part of aerobic exercise session. Deep breathing exercise and relaxation exercise are also included. The weekly group class also included ergonomics, back pain mechanisms and self-management technique. The physiotherapist monitored how well the

participants adjusted to the exercise and modified exercise to suit each individual.

Parameters:

VAS[18, 19],RMDQ[20-23], the 50 foot walk test[24].

TABLE-1	
SUMMARY OF PROGRAMME TIME FRAME	
DAY 1	Pre programme screening, outcome measures recorded. Pain- VAS, Disability-RMDQ, Function- 50 foot walk
WEEK 1-6	Supervised group exercise, 6days/week for 6 weeks
WEEK 7-10	Independent home exercise programme
WEEK 10	Individual re-evaluation at end of programme

Data analysis:

Patient information and pre-post intervention scores were entered onto the statistical package used for initial analysis. Paired't' test were used to compare pre and post programme scores for all scales.

There was a reduction in pain measured by Visual Analogue Scale (VAS) in 83% (n=30), who completed the programme and in 77%(n=30) of cases, the Roland Morris Disability Questionnaire (RDMQ) score decreased. In 90% (n=30) of cases show significant improvement in, 50 Foot Walk Test. 83% (n=30) of participants shown an improvement in all 3 outcome measures.

Results:

TABLE 2				
OUTCOME MEASURES	PRETEST	POSTTEST	MEAN CHANGE	P VALVE
VAS (0-10) Mean (Sd)	5.5 (0.5)	2.3 (0.9)	-3.2	<0.05
RDMQ(0-24) Mean (Sd)	10.1 (0.7)	4.4 (1.2)	-5.6	<0.05
Walk Test(Seconds) Mean (Sd)	13 (1.4)	11 (1.2)	-2	<0.05

Discussion:

Positive changes were found in majority of patients on completion of the WBCP. The mean change in VAS is 3.2, RMDQ is 5.6, and 50 foot walk test is 2, while is clinically important difference[20, 22]. A reduction in disability following exercise programs has been reported in a number of previous studies[14, 25, 26]. Almost more

than 2/3rd of people (83%) improved there functional performance post programme.

These improvements are consistent with previous studies which reinforce the use of supervised exercise programme as an effective management strategy for CLBP. The participants were supervised by a physiotherapist ad exercised in groups, both of which are likely to help improve motivation and adherence with the exercises. Considering the high economic cost of CLBP, a successful cost-effective intervention is needed for its management. The exercise used in the WBCP required no expensive equipment.

No control group was used and patients were not followed up to explore whether or not outcomes were being maintained in long-term. Although each patient had a home exercise manual, adherence to the home exercise programme was not formally evaluated. Further research is needed to establish the cost benefits of this intervention.

Conclusion:

The Waterford Back Care Programme was found to be effective in reducing pain, disability and improving functional performance among programme participants. Given the positive results of this study in terms of both improved access to services and good patients outcomes, it is proposed that more such LBP programmes be developed and evaluated in our country.

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