

Mechanical Low Back Pain Patient- Management by Therapeutic Exercise

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Definition

Mechanical Low Back Pain defines as tiredness, discomfort or pain in the lower back area without a specific physical cause. Back Pain is a common symptom. Back Pain also a complex phenomena and unpleasant and unique physical and psychological experience.

More than 80% of World populations have back complained during their lifetime. Low Back Pain mostly occurs during 30 years to 60 years of life. Low Back Pain is the most common cause of sickness related absence from the work. Most of the population experience this problem and lose many working days. Back Pain is a burden for the society says- Kelsey-1978, Anon- 1985, Anderson- 1991, Clabber- 1995, Jackson 2001.

In UK more than 50 million days lost from work each year. In USA Low Back Pain is the 2nd most common symptom reported at any given time in their life- Gwdavatti- 1998. 70-85% Americans have Back Pain. In Canada more than 70% people have Back Pain. Back Pain is classified to 3 categories based on duration of symptom. In Sweden 70% of adult people have significant Low Back Pain.

Anatomy

Lower Back is a Complex Structure 5 lumbar vertebrae and 1 fused sacral vertebra. Disc- Inter vertebral disc are inter course in between the adjacent surface of the bodies of the vertebra. There 23 to 24 inter vertebra disc comprised about 25% total length of vertebra column. It has 2 parts, one centrally placed called nucleus pulposus and peripheral part called annulus fibrosus. The disc bind the vertebra together, permit limited movement, acts as shock absorber and render the spine strong. Spinal canal contain lower part of spinal cord, cauda equina spinal meninges, cerebrospinal fluid and the vertebral venous plexus, inter vertebral foramen contains spinal nerve posterior root ganglia, spinal arteries and vein. Nerve supplies- Spinal nerve, Arterial supply by segmental artery, Venous drainage by intervertebral venous plexus, Ligaments of the lumbar region- There are 4 groups of ligaments according to their attachment. Anterior longitudinal ligament and posterior longitudinal ligament, Ligamentum Flavum, Ilio lumbar ligaments and sacral ligaments.

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Muscles

Flexion:

Rectus abdominis, Internal Obliques, External Obliques.

Extension:

Longissimus dorsi, Spinalis dorsi, Iliocostalis dorsi, Iliocostalis lumborum, Quadratus Lumborum.

Side Flexion:

Rectus Abdominis of same side, Erector spinae of same side, Internal Oblique, External Oblique.

Rotation:

External Oblique, Internal Oblique, Multifidus.

Movements:

Flexion, Extension, Side Flexion, and Rotation.

Objectives

- * To find out the outcome of patient with mechanical low back pain by directional movements technique at physiotherapy centers.
- * To establish clear idea about directional movement technique for mechanical low back pain patient.
- * To focus on the percentages of recovery rate of mechanical low back pain patient by using this technique.
- * To investigate the lacking of application of these techniques for mechanical low back pain patient.
- * To represent these techniques to other professionals.

Specific Objectives

To identify the most effective directional movement technique for patient with mechanical low back pain and decrease burden.

Summary of Background Data

Low Back Pain is classified into 3 categories based on duration of symptom.

Acute Low Back Pain- Pain present for 6 weeks or less
Sub. Acute Low Back Pain- Pain present for 6-12 weeks
Chronic Low Back Pain- Pain Lasts longer than 12 weeks
60% Acute Low Back Pain returned to work within 4 weeks and 90% returned within 12 weeks.

Methods and design

The study design was quantity, non-experimental, retrospective survey.

Sample Selection:

Physiotherapy Centers- (Panthopath Physiotherapy Center, Mouchak Physiotherapy Center, Gulshan Physiother

Mechanical Low Back Pain

apy Center and Islami Bank Physiotherapy & Disabled Rehabilitation Center), Dhaka.

Mechanical Low Back Pain

It is particularly associated with occupation that involves heavy lifting, bending or twisting movement. There are 3 categories of mechanical low back pain.

Postural syndrome:

Soft tissue under prolonged stress.

The dysfunction syndrome:

Reduced spinal mobility and contracture of fibrous collagen scar tissue.

Derangement Syndrome

Derangement Syndrome: Disruption or displacement occurs within the inter vertebral disc. The disc derangement may be 3 types.

- ? Minor or major posterior disc disturbance
- ?? Minor or major posterior lateral disc disturbance with impingement of nerve root & dural sleeve with sciatica with or without deformity.
- ? Anterior or anterolateral disc disturbance.

Causes of Low Back Pain

Low Back Pain is a symptom of various conditions affecting structures in the low back. There are two causes of low back pain, one is a mechanical causes & another is a non-mechanical cause.

Mechanical:

Derangement syndrome, Postural syndrome, Dysfunction syndrome.

Non-Mechanical:

Paget's disease, Spinal tumor, Osteomyelitis, Tuberculosis, Non-tubercular granulomatous, Reflex sympathetic dystrophy, Disc inflammation, Osteoarthritis but pain starts due to mechanical changes, Rheumatoid Arthritis, Osteoporosis.

Management of Low Back Pain

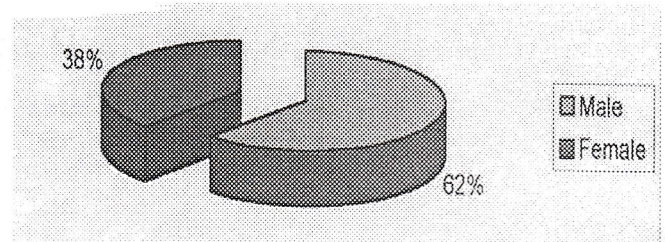
Physiotherapy management of mechanical low back pain need evidence based physiotherapy. Mechanical low back pain one of the common disorder. Physiotherapy treatment include- explanation, reassurance, therapeutic exercise, passive extension, postural correction and analgesic. In therapeutic exercise we have included directional movement technique. There are 17 directional techniques but in this study I have used only 7 directional techniques- EIL, FIL, EIS, FIS, FIL with Rot., SGIS & FISS.

Result

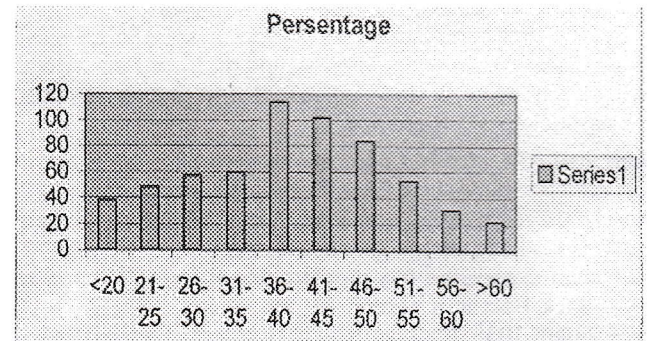
Total 609 patients were treated and 62% (378) male and 38% (231) female. Peak age is 30-60 years. Pain was centralized about 524 patients out of 609 patient. The result shows that 86% patient was improved and 14 % patient was not improved. The most effective technique was EIL.

Ratio Male & Female Patient

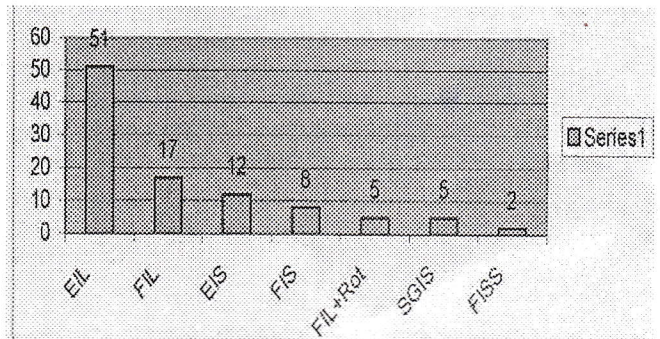
Total Patient 609, Male 378 (62%) and Female 231(38%)



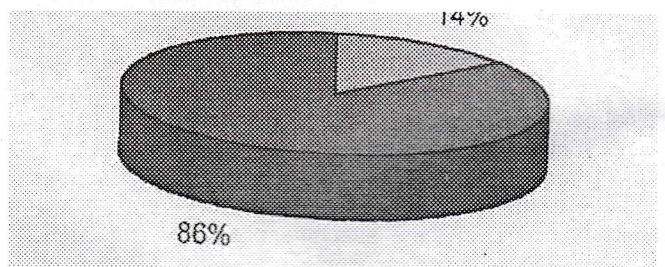
Percentage of Age Group



Percentage of Effectiveness of Directional Movement Technique



Effectiveness of DMT for all Patient
Effective: 86%, Non-effective: 14%



Discussion

The McKenzie trained physiotherapist collected data. Male patient was 378 and female 231. The data indicate that most of the Mechanical Low Back Pain (MLBP) patients are male. The posture of the trunk course stress to the spine at the level L4-5 / L5-S1 and disc between the vertebrae stretched. It is indicated over all 36-50 year in moveable age for affected low back pain.

At the age 30-45 years- the nucleus pulposus is still capable of absorbed water and annulus fibrosus become weakened due to coating over time. So nuclear material may protrude in to the tears of fissure.

The technique was used to teach one patient was directional movement techniques. Successive rate was good 86% and unsuccessful rate was 14%.

- * EIL Most Effective Technique
- * EIL Most Effective Technique
- * EIS Most Effective Technique
- * EIL and EIS most effective techniques. Second effective technique is FIL and FIS.
- * FIL Also Most Effective Technique
- * FIL Also Most Effective Technique
- * FIL Also Most Effective Technique

Advice

- * Back exercise,
- * Posture care,
- * Sleep in firm mattress,
- * Avoid lifting,
- * Keep the spine straight.
- * Lifting Objects
- * Sitting Posture

Recommendation

Recommendation for further study which will be more valuable if the study will prospective.

Conclusion

Directional movement technique is the most effective mechanical low back pain patient. These results will support the other studies of the current world and will help to reduce global burden of injury.

Reference

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