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ORIGINAL ARTICLE

Effects of Lumbar Decompression in Patients of Low Back Pain

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ABSTRACT

Background: Low back pain is a state of distress to the lumbar spine with or without manifestations to the distal points whose cause is often unknown. Spinal decompression is an advanced modification of traction, a technique used to reduce disc pressure, to increase the intervertebral space and to regain the normal position and height of the disc.

Objective: The objective of this research was to determine the effects of Lumbar Decompression therapy in patients of low back pain by using Oswestry pain scale questionnaire.

Methodology: It was a longitudinal study and data was gathered from population in Lahore and completed at KKT Orthopedic Spine Center Lahore. Total 136 patients were surveyed before the treatment (baseline) and after the treatment (6 sessions).

Results: Total score on baseline was 42.7and total score after 6 sessions was 27.33. So, according to total Mean score after 6 sessions i.e 27.33, decompression is statistically effective.

Conclusion: Total mean score after six sessions of treatment were less than at baseline. So lumbar decompression therapy is very effective in treating low back pain.

Key words: Low back pain, Decompression, herniated disc patients.

INTRODUCTION:

Low back pain is a state of distress to the lumbar spine with or without manifestations to the distal points whose cause is often unknown.[1] Lower back pain can be acute (pain under 6 weeks), sub-acute (6 to 12 weeks), or chronic (Over 12 weeks).[2] Low back pain (LBP) is a very common musculoskeletal conditions. 70-80% of the population must have suffered from LBP during his/her lifetime.[3] Strain or sprains, Poor mal -alignment or fusion of the vertebra ,Degenerative disc disease ,Osteoarthritis, disc bulge, disc herniation ,Spinal stenosis ,Spondylolisthesis ,Small ruptures to the spine from osteoporosis ,Scoliosis are some of the common causes of low back pain.[4]

Spinal decompression is an advanced modification of traction, a technique used to reduce disc pressure, to increase the intervertebral space and to regain the normal position and height of the disc.[5] By focusing directly on the damaged area, decompression gently facilitate spacing between disc, allowing fluid, nutrients and oxygen to permeate and replenish the damaged tissue, alleviating compression on spinal nerves while focusing on the cause of symptoms.[6] With this, regeneration of the affected area occurs, treating the source of pain and improving symptoms[7] .In herniated and degenerative disc diseases there is pressure on spinal nerves so spinal decompression has capability to release pressure from the spinal nerves and is also useful in sciatica and facet joint syndrome[8].

The prevalence of common low back pain is estimated at 60% to 70% in industrial countries (in adult incidence is 5% per year). The prevalence rate of low back pain in children and adolescents is although less than adults but is growing. Prevalence rate is higher among the age group of 35 to 55.4[9,10]

A Disease Study OF Global Burden conducted in 2010 showed that low back pain is included in the top 10 problems due to which DALYs (disability-adjusted life years) are higher worldwide than HIV, road accidents, tuberculosis, tumors, chronic obstructive pulmonary diseases and preterm birth complications.[11]

Research approved that traction cannot give effects like decompression. Rather, decompression has been recognized as an effective treatment in various disc problems, by producing and sustaining negative intradiscal pressure at the disc spaces.[12] When intradiscal pressure becomes high

associated with both herniated and degenerated discs it stops the homeostatis and healing of damaged tissues. When decompression is applied to the affected level by adjusting its angle, it produces negative pressure in the disc so osmotic pressure gradient occurs which allows nutrients, water, and blood to flow into the damaged disc and hence allow healing to take place.[13]

Goldfish14 stated that the damaged disc can show improvement by dropping intradiscal pressure, which produces nutritional changes in the nucleus pulposis. Ramos and Martin revealed that if distraction forces given accurately, intradiscal pressure can be can significantly be decreased into a negative range.[14]

Nonsurgical decompression therapy showed strong association between pain reduction and increase in the disc height. This correlation suggests that if the normal height of the disc restored, pain can be reduced. [15]

Decompression describes both major and minor causes of low back pain. Decompression therapy should be given priority at surgical procedure because by surgery causes major enatomical and physiological changes in spine.

With decompression therapy, intradiscal pressure can be significantly reduced which shows the progression in biotechnology.[16]

A study stated that decompression is a principal treatment for lower back pain caused due to lumbar disc herniation, degeneration, facet joint disease and reduced spinal movement.[13]

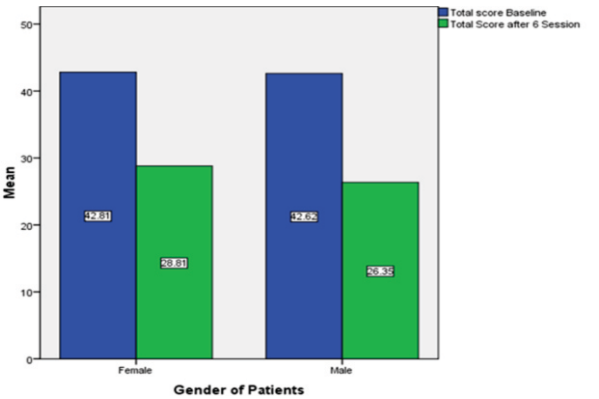
The objective of this study is to know about the effectiveness of lumber decompression technique in low back pain.

METHODOLOGY

This was a longitudinal study. Data was collected from population in Lahore and completed at KKT Orthopedic Spine Center Lahore. 136 patients were included in this study. The sample size was calculated with the help of online sample size calculator with5% level of significance.

The inclusion criteria were Degenerative disc disease, Disc bulge (herniation), Radiculopathy (pinched nerve), Sciatica, Spinal arthritis, Spinal stenosis, and Facet joint syndrome.

The exclusion criteria was people having caudaequina syndrome, unhealed fractures, severe osteoporosis, pars defects, unstable spondylolisthesis (>grade 2 or 3), metastatic cancers /bone cancers, hardwares (rods, metals, plates) in spine, recent surgery in spine, pregnancies. Consent was taken from the patients. Questionnaires were filled directly by the patients and encoded according to the analysis. SPSS 16.0 software had been used for data analysis. Bar charts, pie chart,histogram tables were madeto represent qualitative variable. Mean ± standard deviation (S.D) was used to demonstrate the total score of data.



Graph 1: Gender Distribution

Results

This graph shows the total mean score before and after treatment in association with gender distribution. Total score at baseline is 42.81 and after 6 session is 28.81 in females. Total score at baseline is 42.62 and after 6 session is 26.35.

So, according to this, decompression therapy is effective in treating low back pain.

This treatment is more effective among males (26.35) than females (28.81)

Table 1: Mean ± SD of Age An Weight

Variable	Mean	Standard deviation
Age	45.5662	1.443
Weight	75.50	13.87

DISCUSSION

The objective of this study was to observe the effects of lumbar decompression therapy in patients of low back pain. In order to prove effectiveness, this Cross sectional survey was conducted based on 2 weeks' time period and 136 patients were studied. A Performa was used for each patient, which was filled out by patients before treatment and after 6 sessions of the treatment.

Oswestry Disability Index (ODI) questionnaire was used for assessment. The condition of patients was assessed before the treatment of decompression therapy and scored them after six sessions. The total mean score was decreasing after the treatment which reflected Improvement as compared to the baseline .Mean and Standard Deviation which was calculated after 6 sessions of treatment was less than at baseline. . So there was a valid conclusion that there is more consistency and reliability in total score after six sessions of decompression therapy.

A study was conducted on 219 patients having degenerative and herniated disc diseases with at least 4 week onset. 86% patients were successfully treated by decompression. Out of those 219 patients, 188 patients were those who completely recovered by having no pain, increased lumbar range of motion and no sensory and motor deficit. The remaining 31 patients had major pain and disability, with minor improvement overall. while the present study also indicates that 136 patients suffering from low back pain were treated by decompression therapy and there was significant reduction in pain and other symptoms after 6 sessions of decompression. Total mean score at baseline was 42.7 and after six sessions it was 27.3 which signifying effectiveness of decompression therapy in treating low back patients.

Literature showed that a study was conducted on 30 patients who had lumbar herniated disc disease and average age 65 years. Out of those 30, 9 were males and 21 were females having LBP from12 weeks. During treatment, LBP was decreased from 6.2 to 1.6 and disc height also increased so the study showed that there is strong association between Increase in disc height and reduction of pain.In 1997, an uncontrolled clinical trial was performed to compare the effects of intermittent motorized traction with spinal decompression. There were 27 men and 12 women having ruptured disc and sciatic radiation and symptoms were present from approximately one year. The authors stated that 86% of patients with damaged disc had “better or best” results with decompression therapy than those 55% patients who were treated with traction.[24] while the present study also indicates that males are more prone to develop lower back pain as compared to females.

A case series was conducted which included 778 cases of patients that had disc impairments or facet joint disorder confirmed by various investigations. Total Pain duration was 4 months or more in 83% of cases. Patients were treated with the VAX-D decompression unit. The study showed 71% success rate.

CONCLUSION

The results of current study indicates that lumbar decompression therapy is very effective in treating low back pain.

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