

Assessing Pain Relief Following Medical and Surgical Interventions for Lumbar Disc Herniation

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Abstract:-

➤ Objective:

Lumbar disc herniation is the predominant degenerative abnormality commonly seen in the lumbar spine. There are two possible treatment options in this situation: medical and surgical. Due to the paucity of existing data, it is necessary that thorough studies be conducted in order to evaluate and compare the benefits and efficacy of early surgical intervention against conservative techniques when it comes to the management of lumbar disc herniation.

➤ Methods

From February 1st to July 31st, 2023, this study was carried out in the Spine Surgery department of the Combined Military Hospital Rawalpindi. After obtaining informed consent, 200 people between the ages of 20 and 50 who had been diagnosed with lumbar disc herniation were added to the study. Out of these individuals, 130 selected medical intervention and 70 selected surgical intervention. The visual analogue scale (VAS) was used to record the patients' pain levels prior to the start of the appropriate therapies. A follow-up pain assessment was performed 90 days following the start of the medicinal intervention and 14 days following the surgical procedure.

➤ Results

Both the medicinal (7.04 ± 1.03 vs. 3.52 ± 0.53 ; p-value: <0.0001) and surgical (6.91 ± 0.95 vs. 2.42 ± 0.43 ; p-value: <0.0001) intervention groups had significantly different pain scores in the post-intervention period. Following the intervention, the surgical group experienced a considerably lower VAS pain score (2.43 ± 0.44 vs. 3.53 ± 0.54 ; p-value: <0.0001) than the medical group, with the surgical group experiencing a more dramatic reduction. Both lumbar disc herniation treatment choices should be offered to patients, and the

benefits and drawbacks of each therapy category should be discussed.

➤ Conclusion

In this study, there was a significant decrease in pain among participants who were in their forties and fifties. Clinically, it presents as sciatica that advances along with lower back discomfort.

I. INTRODUCTION

There are a variety of underlying reasons that contribute to this illness, including both hereditary and mechanical components.

Notably, a number of other factors also significantly affect it, including smoking, mechanical strains that are repeated, and vibration exposure. [1].

The most common form of diagnosis is clinical, and the best diagnostic imaging modality to confirm lumbar disc herniation is magnetic resonance imaging (MRI). [2-3].

Typically, a mix of patient education, physical therapy, medication therapies, and, when necessary, surgical procedures are used to manage this illness. [4].

The most common degenerative anomaly affecting the lumbar spine is lumbar disc herniation, which affects 2% to 3% of the world's population.

Pain relief, neurological rehabilitation, and a swift return to regular work schedules are the main objectives of treatment.

Conservative treatment is generally preferred when young individuals report with minimal neurological impairments and a small disc herniation. [5].

There have been significant advancements in the realm of management in recent years.

Current clinical research highlight a faster rate of recovery, as measured by the Japanese Orthopaedic Association scoring system, for patients who get early surgery.

This strategy favours a speedy reintegration into work-related activities.[6].

Nevertheless, inconsistent results from additional studies indicate that, as opposed to the seven-week recovery period linked with conservative treatment, the postoperative recuperation period is actually longer, at approximately 11 weeks. [4].

Localised statistics are still hard to get by, even with the large amount of worldwide research on this subject.

Therefore, it is necessary to conduct additional research and evaluation of the benefits and efficacy related to early surgical intervention in comparison to the conservative management of lumbar disc herniation, particularly within the local context. This endeavor emerges as an urgent necessity.

II. MATERIALS AND METHODS

This study, which covered 250 patients with lumbar disc herniation diagnoses aged 20 to 50 years, regardless of gender, was carried out at a tertiary care hospital's Spine Surgery unit in Pakistan from February 1st, 2023, to July 31st, 2023. After informed consent, patient recruitment was made easier by use of consecutive convenient non-probability sampling. MRI scans were used to confirm the presence of lumbar disc herniation. Prior to participant enrollment, the ethical review board gave its permission. Following registration, a self-structured questionnaire was

used to gather demographic information as well as the disc herniation's location. The possible advantages and disadvantages of both medicinal and surgical treatments were explained to the patients. Patients were assigned to either the surgical intervention group or the medical intervention group based on personal choices. Out of the participants, 81 preferred surgical treatment, and 169 preferred medicinal intervention. Prior to the intervention, the visual analogue scale (VAS), which has a range of 0 (no pain) to 10 (severe pain), was used to quantify each patient's level of pain.

Ten days following the patient's enrollment, a minimally invasive lumbar discectomy was performed as the surgical procedure. The medical intervention involved giving 75 mg of pregabalin three times a day along with two doses of paracetamol (450 mg) and orphenadrine citrate (35 mg) as painkillers. 90 days after the start of medicinal management and 14 days following surgical intervention, pain assessments were conducted. Eleven subjects requested and received surgical intervention during the trial, which resulted in their exclusion. Additionally, three patients from the surgical intervention group and twenty-one from the medicinal intervention group were lost to follow-up. The longer follow-up period was the reason given for the increased attrition rate in the medical intervention group. The final analysis included every participant who completed the follow-up successfully.

IBM Corp.'s Statistical Packages for Social Sciences (SPSS) version 23.0 was used to process and analyse the data. Whereas categorical variables were shown as frequencies and percentages, continuous variables were summarised using mean and standard deviation (SD). The t-test was used to compare the average pain scores. The null hypothesis was rejected when there was a significant difference between the two groups, as indicated by a p-value of less than 0.05.

III. RESULTS

No significant difference was found in the demographics and location of disc herniation between the medical and surgical intervention groups (Table1).

Table 1 Demographics with Variations

Demographics	Medical Intervention (n=137)	Surgical Intervention (n=78)	p-value
Age in years (Mean ± SD)	37 ± 6	43 ± 6	NS
Male	68 (51.0%)	41 (50.0%)	NS
BMI more than 25 kg/m ²	37(27.7%)	24(29.4%)	NS
Location of lumbar disc herniation			
L4-L5	99 (73.7%)	53 (73.0%)	NS
L5-S1	35 (26.3%)	22 (27.0%)	

There was a significant difference in the VAS pain score in post-intervention period in both medical (7.01 ± vs. 3.54 ± 0.51; p-value: <0.0001) and surgical intervention group (6.92 ± 0.95 vs. 2.41 ± 0.42; p-value: <0.0001). Post-intervention, the VAS pain score was significantly lower in the surgical as compared to the medical group (2.41 ± 0.42 vs. 3.54 ± 0.51; p-value: < 0.0001) (Table 2).

Table 2 Pain Scores between Groups

	Pre-Intervention	Post-Intervention	Intragroup*	Intergroup**
Medical	7.04 ± 1.05	3.54 ± 0.51	< 0.0001	
Surgical	6.92 ± 0.95	2.41 ± 0.42	< 0.0001	
Group	VAS Score (Mean ± SD)		p-value	
				< 0.0001

TABLE 2: Comparison of pre-and post-intervention VAS score in both groups

*calculated by comparing pre and post-intervention VAS score within the same group

**calculated by comparing the post-intervention score of both groups VAS: visual

IV. DISCUSSION

Our research showed that the medical and surgical groups' post-intervention VAS pain scores significantly differed from one another. In addition, the surgical group's post-intervention VAS pain score was much lower than the medical group's. These results are consistent with other studies. An early surgical surgery for sciatica lasting six to twelve weeks was compared with long-term conservative therapy for six months in a randomised controlled trial (RCT). The experiment showed that early surgery resulted in faster pain relief than more conservative therapy. [7]. In a similar vein, Nygaard et al. and Ng et al. also emphasised that surgery done eight to twelve months after sciatica first appeared produced worse results than surgery done earlier [8–9]. Furthermore, some excellent observational cohort studies demonstrated noticeably worse results after longer conservative treatment rather than surgery. [10].

Early surgery has been shown to provide several benefits for patients, including faster recovery from leg discomfort, reassurance, and the ability to resume everyday activities. Even as early as eight weeks, these surgical benefits became less significant by the six-month follow-up. The postponement of surgery caused suffering for many patients as well, and a significant number of patients—up to 56%—recovered without the need for surgery [11]. Prior studies found that although surgery was linked to better symptoms, functional status, and confidence, at five years there was no significant effect on disability or employment outcomes. Nevertheless, medical therapy is more likely to be connected with disability and work results, which are impacted by a variety of factors. These variables include workspace layouts, job

specifications, independence and contentment, additional revenue streams, regional economic situations, and more [12]. This implies that patients receiving surgical treatment, as opposed to those receiving non-surgical methods, had better symptom alleviation and improved functional status at follow-ups [13]. Rapid pain alleviation is more closely associated with surgical treatments, even though most patients prefer conservative treatment due to its lower risk of consequences. Previous observational studies have also shown that surgery can quickly alleviate back pain [14–15]. Previous randomized controlled trials have also shown rapid pain relief in individuals who had surgery, but they were unable to show significant surgical benefits over conservative care in long-term evaluations of neurogenic symptoms [7,16].

However, there are obvious limitations to our study. First of all, because the study was limited to one institution, care should be taken when generalizing the findings to a larger population, and there may not have been enough diversity in the sample size. Second, the only outcome of both medicinal and surgical therapies that we considered in our assessment was pain.

V. CONCLUSIONS

In this study, there was a significant reduction in pain in both groups; however, the reduction was more marked in the surgical group. Consequently, it is advised that patients be given a thorough explanation of the benefits and drawbacks of each method of treating lumbar disc herniation in addition to the two available options. Further large-scale research must be carried out in order to fully assess the long-term consequences of both medical and surgical procedures.

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