

# Effect of Triamcinolone Acetonide Injection for PLID with Moderate Spinal Canal Stenosis Through Caudal Epidural Route

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## Abstract

**Background:** To assess the effectiveness of nonfluoroscopically guided caudal epidural injection of local anesthetic with steroid in patients with disc herniation and moderate spinal canal stenosis.

**Materials and methods:** A prospective study was conducted in Physical Medicine & Rehabilitation Department, Dhaka Medical College Hospital, Dhaka from 1.7.2017 to 30.6.2018. Thirty patients were diagnosed as PLID with moderate spinal canal stenosis clinically as well as confirmed by MRI lumbosacral spine to patients received 2 weeks traditional physiotherapy but improvement was not satisfactory. Neurosurgery consultation was taken, but patient refused to do operation. After taking written consent, Injection Triamcinolone acetonide 80 mg was given each patient through caudal epidural route. Patients were assessed on three parameters (VAS, SLR, Walking distance) before intervention and following injection at 1<sup>st</sup>, 4<sup>th</sup>, 12<sup>th</sup> week follow up.

**Results:** There was obvious improvement found following intervention in all three parameters and all of these were statistically highly significant up to 12<sup>th</sup> week follow up.

**Conclusion:** Nonfluoroscopically guided caudal epidural injection of local anesthetic with steroid in patients with disc herniation and moderate spinal canal stenosis may be an effective treatment and may be tried before surgery.

**Key words:** PLID (Prolapsed Lumbar Intervertebral Disc); Spinal canal stenosis; Caudal epidural injection.

## INTRODUCTION

Low Back Pain (LBP) is the commonest musculoskeletal pain and most of the people (60- 80%) have experienced at sometime in their life<sup>1</sup>. Approximately 40% of people say they have had low back pain within the past 6 months and annually 15% report low back pain lasting longer than 2 weeks. Studies have shown lifetime prevalence as high as 84%<sup>2</sup>. Onset usually begins in the teens to early 40s. Most patients have short attacks of pain that are mild or moderate and do not limit activities but these tend to recur over many years. Most episodes resolve with or without treatment and the great majority of people who have back pain do not seek medical care. Low back pain is a symptom, not a specific disease. LBP is generally described as pain between costal margin and the gluteal folds. LBP has become a costly burden to society and leading cause of disability and loss of productivity. Mechanical low back pain particularly due to disc problem as well as spinal canal stenosis is very common. Prevalence of such a problem is increasing day by day due to our environment and life style. The terminology used to describe disk material that extends beyond the intervertebral disk space is confusing. Herniated disk, herniated nucleus pulposus, disk bulge, disk protrusion, ruptured disk and prolapsed disk are all commonly used terms, and sometimes are incorrectly used synonymously<sup>3</sup>. Proper diagnosis is essential for the management of LBP, although it is difficult to manage and most of the time pain persists throughout life. Many treatment options exist at present, but no one could be universalized.

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The increasing prevalence of spinal pain and disability and the explosion of health care costs are major issues for the US and all over the world. Freburger reported a rapid overall increase in low back pain of 162%, rising from 3.9% in 1992 to 10.2% in 2006. A study of US Burden of Disease Collaborators showed spinal pain occupying three of the first five categories of disability. Hoy reported various prevalence for spinal pain, with an annual prevalence of 39% in the low back, 26% in the neck, and 13% in the midback or thoracic spine. Leboeuf-Yde reported the prevalence of low back pain to be 43%, neck pain to be 32%, and thoracic pain to be 13%. In addition, the prevalence of persistent pain is high, especially in the elderly and it is closely associated with functional limitations<sup>4</sup>.

Epidural Steroid Injections (ESIs) are commonly used in the management of chronic lower back and leg pain. Caudal epidural steroid injections are commonly utilized to help reduce radicular pain in lumbar spinal stenosis.

Degenerative lumbar spinal stenosis is a frequent cause of disability in the elderly population. Epidural steroid injections are a commonly used conservative modality in the treatment of patients with degenerative lumbar spinal stenosis.

#### MATERIALS AND METHODS

This study was a prospective study during the period between 1.7.2017 and 30.6.2018. Random sampling was done among PLID with moderate spinal canal stenosis patients (n=30) attending Physical Medicine & Rehabilitation Department, Dhaka Medical College Hospital, diagnosed clinically and confirmed by MRI. Data were collected by face to face interview with preformed questionnaire and physical examination done during first & follow up visits. Analysis was done using SPSS 22 software. Descriptive statistics was used for data analysis. The results were presented with the use of simple percentage (%). The collected data were illustrated with tables, bar charts and pie charts. Chi square test was done to find the associations between variables. Paired t test was done for comparison between before and after intervention.

#### RESULTS

In this study, participants were in between 26–47 years. Most of the participant's age is 42 year (16.5%) followed by 28 & 35 year (13.3% each). Among them 60% were male and 40% were female. 36.7% of them were doing household work, 33.3% official / sedentary work and 30% manual work. Most of them had been suffering from 4 months (43.3%) followed by 6 months (33.3%). There was no significant difference in VAS ( $p=0.28$ ), SLR ( $p=0.13$ ) and walking distance ( $p=0.41$ ) within age and sex before intervention. Significant difference was present VAS ( $p=0.038$ ) within occupation before intervention although no difference found in SLR and walking distance. Significant difference was found VAS 1<sup>st</sup> week after intervention ( $p=0.03$ ) within sex. There was obvious improvement found after intervention in all three parameters and all were statistically highly significant ( $p<0.005$ ) that remained static up to 12 week follow up.

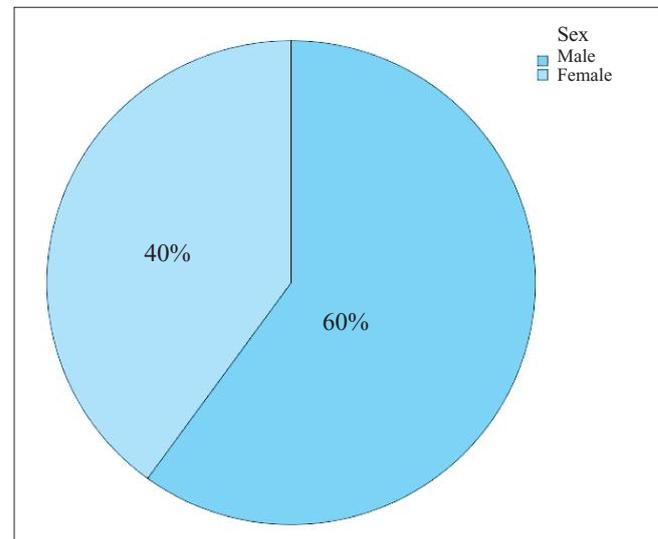


Figure 1: Male and female ratio among the respondents

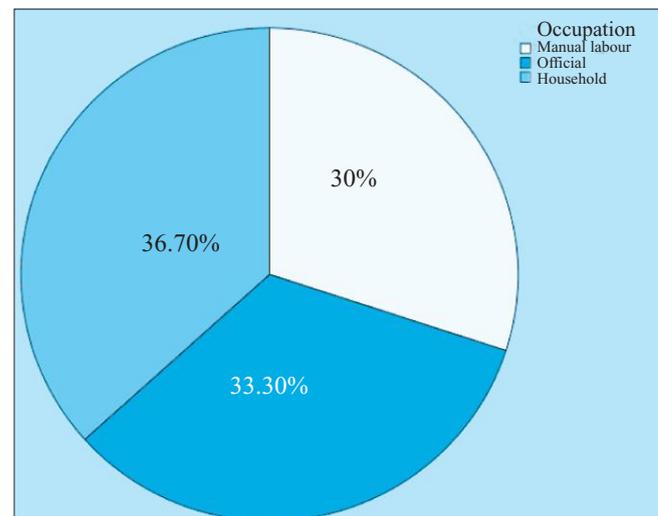


Figure 2: Occupation of the respondents

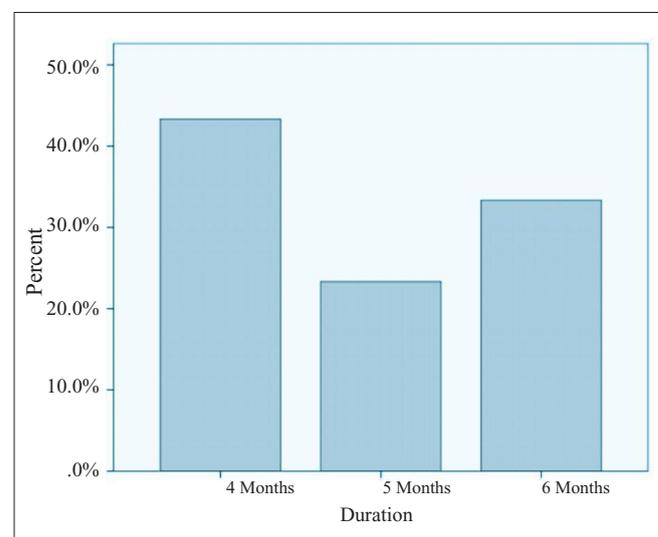


Figure 3: Duration of symptom in months

## DISCUSSION

This study revealed that prolapsed lumbar intervertebral disc with spinal canal stenosis is common among third and fourth decade, although it may be occurred at any age and increases with aging<sup>5</sup>.

Prevalence was found more among male compared to female in this study that is similar in most other studies<sup>6</sup>.

Prevalence and intensity was more among household worker in comparison with manual worker and official desk worker that is similar in other study<sup>7</sup>.

In this study VAS, SLR and walking distance were considered as parameter to assess improvement during follow up after intervention that is similar in some studies. Only VAS was used in few studies. The primary outcome measure was pain relief and the secondary outcome measure was functional improvement<sup>8,9</sup>.

In this study Injection Triamcinalone acetonide and local anaesthetic (1% Lignocaine) was given in every patient that was similar in most of the studies although multiple solutions including saline, local anesthetic, steroids were used in some other studies. The responses to these various solutions were variable and did not systematically assess with long-term follow-ups<sup>8,10,11</sup>.

There was no significant difference found in VAS, SLR, walking distance within age, sex and occupation before intervention except difference of VAS present within occupation. No difference was found in VAS, SLR and walking distance after intervention within age, sex and occupation except significant difference found in VAS 1<sup>st</sup> week after intervention within sex.

There was obvious improvement found in all three parameters after intervention and all were statistically highly significant that remained static up to 12 week follow up that is similar to most of the studies<sup>6,9,10,12</sup>.

There have been studies done to evaluate the effectiveness of this procedure non-fluoroscopically guided. Search revealed no prospective studies evaluating the effectiveness of fluoroscopically guided caudal epidural injections on patients with bilateral radicular pain from degenerative lumbar spinal stenosis. Fluoroscopically guided caudal epidural steroid injections may help reduce bilateral radicular pain and improve standing and walking tolerance in patients with Degenerative Lumbar Spine Stenosis (DLSS)<sup>13</sup>.

Relatively few studies have specifically addressed the efficacy of epidural steroid injections for spinal stenosis, with success rates varying from 20% to 100%. Caudally placed fluoroscopically guided epidural steroid injections offered a safe, minimally invasive option for managing pain caused by lumbar spinal stenosis<sup>14</sup>.

At greater than two years follow-up, the efficacy of fluoroscopically guided caudal epidural steroid injections in patients with chronic lumbar discogenic pain is poor. Patient satisfaction exceeds the reported rate of efficacy. Patients responding to injection have significantly lower pre-injection pain scores<sup>15</sup>. The evidence for effectiveness of epidural injections in managing chronic spinal pain ranged from limited to strong<sup>16</sup>. There was good evidence for short- and long-term relief of chronic pain secondary to disc herniation or radiculitis with local anesthetic and steroids and fair relief with local anesthetic only. Further, this systematic review also provided indicated evidence of fair for caudal epidural injections in managing chronic axial or discogenic pain, spinal stenosis, and post surgery syndrome<sup>9</sup>.

## LIMITATIONS

Study was done in a small scale. Long term effect of Triamcinalone acetonide through caudal epidural injection could not be assessed.

## CONCLUSION

PLID with Spinal Canal Stenosis is not uncommon in our regular practice for PMR physicians. Manage these patients in most of the time very difficult and unsatisfactory. Most patients deny do surgery although it's indicated. Physical measures, exercises and lifestyle/ ADL modification have a great role and beneficial that should be tried earlier to any sort of intervention. If these fail to improve the condition and no other contraindication specific nerve block may be tried.

## DISCLOSURE

All the authors declared no competing interest.

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