

# Efficacy of Epidural Steroid Injection in Relieving Chronic Lower Back Pain

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## ABSTRACT

**Aim:** To assess the efficacy of epidural steroid injection in relieving chronic low back pain

**Methods:** This prospective study was conducted in Khyber Teaching Hospital from September 2016 to March 2017. All patients with chronic low backache fulfilling inclusion criteria was enrolled. Epidural joint injections were administered in an operating room. Outcome was assessed according to numerical rating score (NRS) before and after procedure.

**Results:** The mean age was 43.51±8.13 years. Sixty six percent patients were males and 34% patients were females. Mean duration was 8 months±3.72 years. Mean pre-operative pain score was 8±2.01 while mean post-operative pain score was 3±3.16. Epidural steroid injection was effective in 57% patients and was not effective in 43% patients.

**Conclusion:** Epidural steroid injections were effective in the treatment of chronic low back pain in term of reduction of pain.

**Keywords:** Assault, Sexual abuse, Physical findings, Laboratory findings

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## INTRODUCTION

Low back pain is a common problem. Every year, 3-4% of the population is disabled momentarily, and 1% of the working-age population is disabled entirely for whole of life because of low back pain. Low back pain is important cause of lost work time. It is the 5th most frequent cause for hospitalization and the 3rd most common reason to undergo a surgery. As lower back supports most of body weight so most common area affected is lower back<sup>1-4</sup>.

Degenerative and traumatic conditions of the spine are one of the most common causes of chronic low back pain. A slow pace of tissue repair in a fairly avascular intervertebral disc may spoil the resolution of chronic Low back pain. Various anatomic structures of the lower spine have been well thought-out as the origin of lower back pain<sup>5-9</sup>.

Various studies have shown noteworthy improvement with epidural injections in patients with chronic low back pain 71%<sup>10</sup> 65%<sup>11</sup> and 50%<sup>12</sup>. In our set up, epidural blocks are regularly used to support non-operative treatment for chronic LBP and our subjective perception is that a considerable amount of patients report considerable pain relief after this procedure. However, there is a scarcity of studies exploring the prophecy of the therapeutic efficacy of an epidural injection. Selecting patients with chronic low back pain who would benefit from an epidural block would save health care expenses.

The intend of this study is to find the short and medium-term remedial effectiveness of epidural lignocaine and steroid injections in chronic Low back pain .It will help in establishing local statistics on effectiveness of epidural

injection for chronic low back pain in our population. Our study will help us in reducing the cost of treatment; frequent OPD visits associated with for chronic low back problems. The results of this study will be disseminated to other health professionals and suggestions will be given for rationale use of steroid injection for chronic low back pain.

## PATIENTS AND METHODS

This prospective study was conducted at KTH, Peshawar from September 2016 to March 2017 and comprised 151 patients. Every single one of the patient with chronic low back pain who were presented to outpatient Departments at Orthopaedic and Trauma unit, Khyber Teaching hospital were included in the study based upon the inclusion criteria. Informed consent was taken after preliminary assessment of symptoms based on history and clinical examination including radiograph of the affected site. Prior to the procedure the patients were assessed using numerical rating scale (NRS) for grading of low back pain. Following the procedure follow up was done at six weeks' time and improvement was measured using the same grading system to confirm the effectiveness of the procedure. Epidural joint injections were administered in an operating room. Interventions were performed in a 45° tilted state position with a pillow under the abdomen. Perpendicularly, the epidural needle 18 gauge penetrates the following (in order, from superficial to deep), skin, subcutaneous fat, inter spinous ligament (midline approach), ligamentum flavum, on reaching the epidural space, there is a "loss of resistance", which was implemented using LPR syringe and all procedures were performed under sterile conditions. Mixture containing 80mg of methylprednisolone and 2 ml of 1% lidocaine were

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infiltrated at L4-5, L5-S1 S1 levels according to symptoms. The data was entered and analyzed into SPSS-20.

## RESULTS

Age distribution among 151 patients was analyzed as 15(10%) patients were in age 20-30 years, 30(20%) patients were in age 31-40 years, 35(23%) patients were in age 41-50 years, 36(24%) patients were in age 51-60 years, 35(23%) patients were in age 61-70 years. Mean age was  $43.51 \pm 8.13$  years (Table 1). Status of pre-operative pain among 151 patients was analyzed as 94 (62%) patients had moderate pain (pain score 5-7) while 57(38%) patients had severe pain (pain score 8-10). Mean pain score was  $8 \pm 2.01$  (Table 2). Status of Post-operative pain among 151 patients was analyzed as 86 (57%) patients had mild pain (pain score 0-4), 65 (43%) patients had moderate pain (pain score 5-7). Mean pain score was  $3 \pm 3.16$  (Table 3). Efficacy epidural steroid injection among 151 patients was analyzed as epidural steroid injection was effective in 86 (57%) patients and was not effective in 65 (43%) patients (Table 4).

Table 1: Age distribution (n=151)

Age (years)	No.	%
20-30	15	10.0
31-40	30	20.0
41-50	35	23.0
51-60	36	24.0
61-70	35	23.0
Mean $\pm$ SD	43.51 $\pm$ 8.13	

Table 2: Pre-operative pain (n=151)

Pain score	No.	%
0-4	-	-
5-7	94	62.0
8-10	57	38.0
Mean $\pm$ SD	8.0 $\pm$ 2.01	

Table 3: Post-operative pain (n=151)

Pain score	No.	%
0-4	86	57.0
5-7	65	43.0
8-10	-	-
Mean $\pm$ SD	3.0 $\pm$ 3.16	

Table 4: Frequency of efficacy (n=151)

Efficacy	No.	%
Effective	86	57.0
Not effective	65	43.0

## DISCUSSION

Low back pain is one of the most frequent and expensive medical problems of today. Pain is usually momentary and can arise from multiple spine structures including intervertebral discs, bones, ligaments and muscles of the spine. Risk factors for low back pain include environmental, genetics, psychosocial and biomechanical influences. However, 85% of Low back pain cases have no clear cause, 97% may be due to musculoskeletal issues.<sup>4</sup> Lumbar curvature is one of the factors that generate shearing forces between adjacent vertebrae and at intervertebral joint. About 9 out of 10 adults experience

back pain at some point in their life, and 5 out of 10 working adults have back pain every year.

Our study show out of 151 patients included, 66% were men and 34% were women with a male to female ratio of 2:1, which is consistent with all the series cited that male predominantly affected than females<sup>12,13</sup>. The reason may be that men are more exposed to heavy laboured work i.e. twisting, heavy lifting, and repetitive bending.

The mean age of patients was 43.5 years with minimum of 30 and maximum of 70 years, which is also showed consistency with other cited studies that low back pain is most commonly seen in 4<sup>th</sup> and 5<sup>th</sup> decades of life and rare before 20 years<sup>14</sup>.

The strength of this study is that the efficacy of epidural steroid injection was 57%. This study collaborates with all the mentioned series of studies except for only one study of Kovacs et al<sup>2</sup> in which the efficacy is 71%.

Efficacy of epidural injection in patients with duration of symptoms below 40 months was 93 out of 103(90.29%) patients and non-effective in 33 out of 77(42.8%). The cited studies showed that longer the duration of symptoms the poor will be the outcome by Cyteval et al<sup>15</sup>.

According to inclusion criteria, Grade 2 to 4 according to Oswestery low back pain scale were included, so at presentation Grade 2 (moderate severity) patients were 102(56.4%), Grade 3 (severe) 71(39.2%), and Grade 4 (very severe) were 8(4.4%), out of 181 with a mean of 1.48<sup>16</sup>.

The efficacy of epidural steroid injection in patients with Grade 2 were 71(69.60%) and non-effective in 31(30.39) out of 102 patients, in Grade 3 were 30(42.25%), and non-effective in 41(57.74%) out of 71 patients, the efficacy in Grade 4 was 3 (37.5%), and non-effective in 5 (62.5%) out of 8 patients. This is probably because of, greater the mechanical compression over the nerve root the greater will be the damage to the nerve and the more will be the symptoms, and the lesser will be the efficacy.

In our study epidural steroid injection was found more effective in male than female, that is in out of 104 effective patients 70(67.3%) were male and 34(32.6%) were females. This probably because female are more fatty our setup here in Khyber Pakhtunkhwa than males and this might be reason in my study that the correct placement of epidural needle is easier in male than in females to achieve the desired results.

## CONCLUSION

The epidural steroid injection was 57% effective in the dealing of the chronic low back pain in term of reduction of pain

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