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## **Assessment of Efficacy of Transcaudal Injection in Patients with Chronic Low Back Pain**

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**Abstract--Background:** Chronic low back pain, which has negative effects on life and which causes labor force loss, is an important community health problem. The present study was conducted to assess efficacy of transcaudal injection in patients with chronic low back pain. **Materials & Methods:** 94 patients of chronic low back pain of both genders were hospitalized and 20 mL, triamcinolone, prilocaine and bupivacaine were administered. Visual analog scale was used for both low back and radicular pain. Parameters such as straight leg rising (SLR) degree, hand finger-floor distance (HFFD) were determined. **Results:** Out of 94, there were 46 males and 48 females. Common surgical indications were spinal instability in 44, signs of conus medullaris, cauda equina in 26, neurologic claudication in 16 and neurologic deficit in 8 cases. The difference was significant ( $P < 0.05$ ). VAS (Radicular pain) at 1 month was 7.6, at 3 months was 4.3 and at 6 months was 2.6. VAS (back pain) was 8.4 at 1 month, 6.2 at 3 months and 3.1 at 6 months. The mean straight leg rising was 40.6 degree at 1 month, 60.3 degree at 3 months and 72.4 degree at 6 months.

**Keywords--**back pain, chronic low, injection, steroid injection, visual analog scale.

## Introduction

Chronic low back pain is common health problem. It has negative effects on life and causes labor force loss. Low back pain may be due to diseases from within the back and those outside of the back (Goupille et al., 1998). It consists of dissecting aortic aneurysm, ruptured gastric or duodenal ulcer, pancreatitis or pancreatic tumor, kidney diseases, aorto-iliac disease endometriosis and sickle cell disease. Diseases from within the back that cause pain are either organic or mechanical. Organic causes include tumor, infection or arthritis. Mechanical causes include trauma, intervertebral disc abnormalities. Abnormalities of the spinal column such as scoliosis, spondylolisthesis, spondylolysis, and facet abnormalities. Abnormalities of the intervertebral disc include degeneration bulging, and herniation (Hamamoto et al., 2012).

According to the data, 10% of all low back pains continue for 4 - 6 weeks, and are then called chronic low back pain (Parr et al., 2012). The treatment of chronic axial and/or radicular low back pain, which is the most frequently encountered complaint in general neurosurgery practice, includes a wide range of options. Lomber epidural steroid applications and surgical methods can be used when the conservative methods are inadequate (Stout, 2010). Interlaminar and caudal injections have traditionally been performed "blind," i.e., without radiographic control (Benzon, 1986). Under these conditions, it has been shown that injections often fail to enter the epidural space, or are intravascular, and therefore fail to reach the affected nerve. Controlled trials have shown that interlaminar injections and caudal injections of steroids are not significantly more effective than sham controls for the relief of pain (Weinstein et al., 1995). The present study was conducted to assess efficacy of transcaudal injection in patients with chronic low back pain.

## Materials and Method

The present study comprised of 94 patients of chronic low back pain of both genders. The consent was obtained from all patients. Data such as name, age, gender etc. was recorded. Patients were hospitalized and 20 mL, triamcinolone, prilocaine and bupivacaine were administered. All were prescribed salt free diet for 10 days. Visual analog scale was used for both low back and radicular pain. Parameters such as straight leg rising (SLR) degree, hand finger-floor distance (HFFD) were determined. Patients were follow-up at 1, 3 and 6 months post-operatively. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

## Results

Table 1  
Distribution of patients

Gender	Total- 94	
	Males	Females
Number	46	48

Table 1 shows that out of 94, there were 46 males and 48 females.

Table 2  
Common surgical indications

Indications	Number	P value
Spinal instability	44	0.05
Signs of conus medullaris, cauda equina	26	
Neurologic claudication	16	
Neurologic deficit	8	

Table 2, figure 1 shows that common surgical indications were spinal instability in 44, signs of conus medullaris, cauda equina in 26, neurologic claudication in 16 and neurologic deficit in 8 cases. The difference was significant ( $P < 0.05$ ).

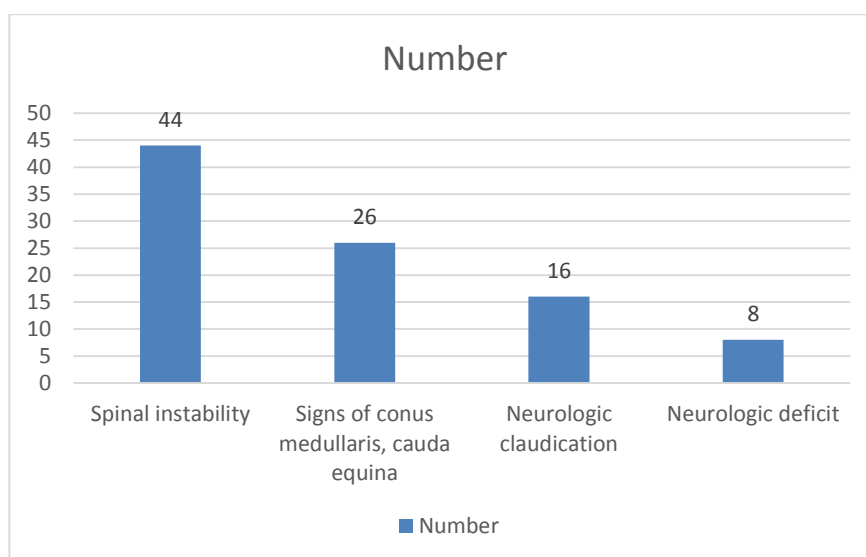


Figure 1. Common surgical indications

Table 3  
Assessment of parameters

Parameters	1 months	3 months	6 months	P value
VAS (radicular)	7.6	4.3	2.6	0.01
VAS (back pain)	8.4	6.2	3.1	0.01
SLR	40.6	60.3	72.4	0.04
Hand finger-floor distance	38.4	32.6	23.1	0.05

Table 3 shows that VAS (Radicular pain) at 1 month was 7.6, at 3 months was 4.3 and at 6 months was 2.6. VAS (back pain) was 8.4 at 1 month, 6.2 at 3 months and 3.1 at 6 months. The mean straight leg rising was 40.6 degree at 1 month, 60.3 degree at 3 months and 72.4 degree at 6 months. Hand finger- floor distance was 38.4 cm at 1 months, 32.6 month at 3 months and 23.1 cms at 6 months. The difference was significant ( $P < 0.05$ ).

## Discussion

Degeneration of the disc leads narrowing of the disc space and is linked with osteophyte formation, herniation of the disc, and osteoarthritis of the facet joints. Bulging of the intervertebral disc distends the posterior longitudinal ligament causing localized back pain (Buchner et al., 2000). When bulging of the disc increases, pressure is exerted on the adjacent nerve roots. This results in radicular pain in the distribution of the compressed nerve roots, i.e. lumbar or lumbosacral radiculopathy (Lievre et al., 1955). Extrusion of the disc material through the posterior longitudinal ligament may result in the relief of back pain due to the release of pressure on the posterior longitudinal ligament, as long as there is no pressure on the nerve roots (Botwin et al., 2002). However, the radiculopathy may be worsened when pressure on the nerve roots is increased (Manchikanti et al., 2013). It is established that resolution of a disc herniation occurs in 75% of patients the spontaneous resolution rate is less with recurrent herniations. Scoliosis causes osteoarthritis of the facet joints and narrowing of the disc space (Rabinovitch et al., 2009). The present study was conducted to assess efficacy of transcaudal injection in patients with chronic low back pain.

We found that out of 94, there were 46 males and 48 females. Atci et al. (2014), in their study 50 patients of chronic low back and leg pain due to lumbar spinal degeneration were treated with epidural steroid injection. It was found that regression at rVAS score of 86% of the patients was detected for a short period after the intervention. VAS scores of 14% of the patients were not different. On long-term follow-up rVAS score analysis of the patients showed regression at 74% of the cases. We found that VAS (Radicular pain) at 1 month was 7.6, at 3 months was 4.3 and at 6 months was 2.6. VAS (back pain) was 8.4 at 1 month, 6.2 at 3 months and 3.1 at 6 months. The mean straight leg rising was 40.6 degree at 1 month, 60.3 degree at 3 months and 72.4 degree at 6 months. Hand finger- floor distance was 38.4 cm at 1 months, 32.6 month at 3 months and 23.1 cms at 6 months. MacVicar et al. (2013), evaluated the effectiveness of lumbar transforaminal injection of steroids in the treatment of radicular pain. For disc herniation, it benefited patients. Success rates are higher in patients with contained herniations that cause only low-grade compression of the nerve.

Murakibhavi & Khemka (2011), in their study clinical evaluations were performed immediately after injection for patients in group B at 3 weeks, at 3 months and at 6 months for both groups. The VAS, ODI score, and the straight leg raise test (SLRT) were used to differentiate patients whose symptoms improved from those who remained symptomatic. Oswestry disability index scores were significantly improved. The patients' mean scores kept decreasing at all follow-up re-evaluations. The mean ODI score was statistically significantly lower compared with the score before injection. The observed decreases of the mean ODI scores (a) between visit 1 and 2, and (b) between visit 1 and 4, were statistically significant.

## Conclusion

Authors found that caudal steroid injection is a safe and efficient treatment method for the patients with chronic low back pain.

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