

CONSERVATIVE THERAPY VERSUS EPIDURAL STEROID INFILTRATION IN MANAGEMENT OF CHRONIC LOW BACK ACHE

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ABSTRACT: BACKGROUND: Sciatica due to lumbar intervertebral disc herniation is one of the most common causes of radicular pain in an adult working population. This study aims at studying the effectiveness of conservative management of lumbar disc herniation as an alternative to surgical measures.

METHODS: A prospective study of 100 patients with lumbar disc herniations who were treated conservatively were followed up at intervals of 1 month, 6 months and 1 year. Patients planned for conservative treatment were treated with pharmacological therapy, rest and physiotherapy. Those planned for epidural steroid injections were administered a single dose of steroid one level higher than the lesion in the epidural space. The collected data was analyzed by Chi square.

RESULTS: Our results showed that in both genders, epidural steroid infiltration yielded better results than conservative treatment. Occupation had no discernible effect on the magnitude of disc herniation. People with sedentary lifestyle recovered better with epidural steroid infiltration as compared to the heavy physical labor group. Irrespective of disc bulge, protrusion or extrusion, the epidural steroid injection group showed significant improvement in symptoms as compared to conservative treatment. Smokers tended to show delay in the recovery as compared with the non-smoker group. The amount of disc herniation is not directly proportional to the outcome of treatment.

CONCLUSIONS: Epidural steroid infiltration showed significant improvement in symptoms of lumbar intervertebral disc herniation thereby avoiding disc surgery. Conservative management for atleast 4 to 6 weeks can be recommended followed by epidural steroid in those patients without improvement. Cessation of smoking should be an integral part of the treatment.

KEYWORDS: Epidural, Conservative, Back Ache.

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INTRODUCTION: Sciatica due to lumbar intervertebral disc herniation is one of the most common causes of radicular pain in an adult working population. A plethora of treatment modalities exist for this common problem, many patients have a tendency to avoid surgery considering its associated risk factors and cost. Lumbar epidural steroid infiltration is a reasonable non-surgical option available in such a situation. Several studies have compared epidural steroid infiltration with discectomy for the treatment of lumbar disc herniations whereas there are only a few studies which throw light on conservative management of lumbar disc herniation. We intended to study and compare the effect and outcome of conservative (non-invasive) and epidural steroid injection (invasive but conservative) and to

study the role of lifestyle (such as smokers and obese individuals) in the outcome of non-operative management of disc hernias.

METHODOLOGY: A prospective study of one hundred patients with lumbar disc herniations in the age group of 25-70 years who were treated conservatively were followed up at intervals of 1 month, 6 months and 1 year. All patients who presented with low back ache with radiation to one or both gluteal regions and posterior aspect of the thighs in combination with exacerbation while coughing and sneezing were evaluated and diagnosis was confirmed with radiographic imaging. Magnetic resonance imaging was done to confirm the disc herniation and to grade the disc herniation and also to rule out other possible causes of back pain. These 100 patients were randomly divided into two groups of 50 each and were treated either with epidural steroid and other modes of non-invasive conservative management.

Patients who were planned for conservative treatment were treated with non-steroidal anti-inflammatory drugs,

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muscle relaxants and bed rest for a period of two to three days. After 1 to 2 weeks, once the acute symptoms subsided, physiotherapy was started in the form of passive exercises, interferential therapy, transcutaneous electrical nerve stimulation, moist heat, short wave diathermy, etc. while patients with single or multiple level lumbar disc herniation- bulge, protrusion or extrusion who were planned for epidural steroid injections were briefed about the pain management and goals and only after a written consent, invasive procedure was carried out. A single dose of steroid was administered one level higher than the lesion in the epidural space by the conventional method.

Technique: Epidural steroid infiltration was carried out in the operation theatre. Patient was positioned in the lateral decubitus position. Injection containing Triamcinolone 40mg mixed with 3 to 4 ml of 2% Lignocaine was injected to the epidural space interlaminar approach. All these injections were performed at one level cephalad to the disc lesion.



Figure 1: Administering epidural steroid

All patients in both the groups (those managed conservatively and those managed with epidural steroid infiltration) were prospectively assessed by clinical examination and questionnaires. The self-assessment questionnaire included a visual analogue scale of 0 to 10 for assessment of current back and radicular pain and Oswestry disability index was used to quantitate the level of function (on a 0 to 100 point scale, in which higher score represents greater disability). The questionnaire and clinical examination was completed at presentation and at every follow up clinical visit. Follow up was carried out at one, six and twelve month interval after treatment. Core muscle strengthening exercises was a part of the treatment for both the cohorts.

The collected data was analyzed by frequency percentage and Chi square test using SPSS version 12 software to evaluate the results.

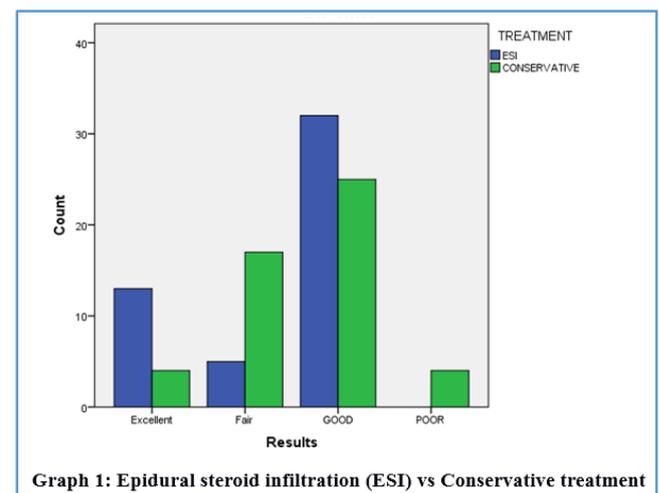
RESULTS: In the study group, 45% were females and 55% males. Twenty female patients and thirty male patients were treated with epidural steroid and twenty five male and female patients were treated with conservative management. Our results showed that in both genders, epidural steroid infiltration yielded better results than

conservative treatment especially in females as they recovered earlier at 6 months follow up.

Occupation had no discernible effect on the magnitude of disc herniation. Whereas in terms of recovery, people with sedentary lifestyle recovered better with epidural steroid infiltration as compared to the heavy physical labor group.

36% of patients only had lumbar disc bulge, 56% had protrusion and 8% had extrusion in our study. We found that irrespective of disc bulge, protrusion or extrusion the epidural steroid injection group showed significant improvement in symptoms as compared to conservative treatment. Patients treated with epidural steroid injections recovered well irrespective of the disc diameter. But, in the conservative group, as the size of the disc increased the disability was higher. Smokers tended to show significant delay in the recovery as compared with the non-smoker group.

We did not notice any complications in both the groups, especially in patients treated with epidural steroid injection viz., headache, facial flushing, increased back pain, nerve deficits and injury, etc.



Graph 1: Epidural steroid infiltration (ESI) vs Conservative treatment

DISCUSSION: This was a prospective study with a reasonably good sample size enabling the results to be generalized. Treatment with epidural steroid injection or non-invasive management was decided on a random basis after confirmation of diagnosis with an MRI.^[1,2]

Irrespective of the magnitude of disc herniation, the cohort which was treated with epidural steroid infiltration showed significant improvement in symptoms thereby avoiding disc surgery.^[3] Beyond doubt, steroid definitely helps control the chemical inflammation causing nerve root irritation which is believed to play a critical role in the genesis of radicular pain with or without the presence of mechanical compression of the nerve roots or cord^[4] After a dose of epidural steroid injections, the Oswestry disability index got better and better with time.^[5] Though patient had a good relief from the radicular pain immediately following the injection we noticed that the sense of satisfaction of well-being was only after few months. The quick relief can probably be attributed to the local

anesthetic that is injected along with the steroid, as methylprednisolone injected in the epidural space can remain inside for upto 2 weeks.^[6,7]

We noticed no complications in the group treated with epidural steroid infiltration. This is in concurrence with a study by Spijker-Huiges who described no reported complications or adverse effects in epidural steroid injections and segmental epidural steroid injections could be considered by policy makers as an additional treatment option.^[8]

We did not notice any significant difference in the outcome of patients with a longer duration of symptoms when compared with those who had shorter duration of symptoms.

Holm S et al in his study on the effects of cigarette smoking on nutrition of the intervertebral disc stated that smoking causes impairment of disc nutrition. ^[9] Furthermore, Iwahashi et al in his study of mechanism of disc degeneration stated that smokers have decreased oxygen levels leading to hyalinization and necrosis of the nucleus pulposus. ^[10] True to the above two studies we found that non-smokers had better outcome ($p = 0.002$) than smokers. This is consistent with other studies. Also, we noted that smokers had worse Oswestry disability scores initially itself suggesting that smokers had more disability with respect to disc herniation.

Conservative management for at least 4 to 6 weeks can be recommended for patients with an intervertebral disc herniation without significant disability. After one month, consider epidural steroid^[11] or surgical intervention in those patients without improvement.^[12]

The results prove that epidural steroid infiltration gives significant relief of pain as compared to other conservative approaches.^[13]

CONCLUSION: Epidural steroid injection probably accelerates pain relief in patients who eventually have natural resolution of radicular pain in a gradual delayed fashion. Epidural steroid could allow faster return to function during the natural history of sciatica. Patient education with respect to injury avoidance and home therapeutic exercise program. Thus, empowering the patient for self care is definitely an effective means in treating the symptoms of lumbar disc diseases. Amount of disc herniation is not directly proportional to the outcome of treatment. Cessation of smoking should be an integral part of the treatment of patients with lumbar disc diseases.

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