

Epidural steroid injections in the management of lumbar radiculitis

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Abstract :

Low back pain is a common problem in human mostly due to disc degenerative disease. By any means, disc disorders are a tremendous problem. Pain is associated with or without radiculopathy. One of the most common causes of low back pain is lumbar disc herniation. The treatment option for lumbar disc herniation /disc degenerative disease may be conservative, epidural injection and surgery. Epidural steroid injection is a one of the choice alternative to surgical intervention in the treatment of lumbar disc herniation. This study was determining the efficacy of epidural steroid injection in the treatment of the patient with symptomatic lumbar disc herniation. Pain relief was excellent 38(%), patient good response was seen in 20(%), patients, no significant pain relief in 10(%) patients. The goal is to reduce severe pain with or without radiculopathy, to decrease the need for oral analgesics, early return to normal activities and physical therapy programme.

Key words: Low back pain, Disc herniation, Radiculopathy, Epidural steroid injection.

Introduction :

Epidural steroid injection (ESIs) have been endorsed by the North American Spine Society and the Agency for Healthcare Quality (formerly, the Agency for Health Care Policy and Research) of department of Health and Human services as an integral part of the management of radicular pain from lumbar spine disorders. Epidural steroid injections in the management of lumbar radiculitis

Radicular pain is frequently described as a sharp, lancinating, radiating pain, often shooting from the low back down into the lower limb in a radicular distribution. Radicular pain is the result of a nerve root lesion and or inflammation. Clinical manifestations of nerve root inflammation include some or all of the following: radicular pain, dermatological hyperesthesia, weakness of muscle group innervated by the involved nerve roots, diminished deep tendon reflexes, and positive straight or reverse leg raising test. In contrast to oral steroids, ESIs offer the advantages of a more localized medication delivery to the area of affected nerve roots, thereby decreasing the likelihood of potential systemic side effects. Studies have indicated that ESIs are most effective in the presence of acute nerve root inflammation.

In our study, ESIs are best performed in combination with a well designed spinal rehabilitation programme. In most cases, epidural injections should be considered as a treatment option for LBP unless other treatment attempts (e.g., physical therapy and medications) have failed to improve the patients symptoms. However, ESIs may be indicated earlier in the treatment algorithm in some selected patients.

Materials and methods :

In this present prospective observational study has been done in between 1st January, 2012 and 31st January, 2013. All consecutive patients with symptomatic lumbar disc herniation were treated by ESIs at department of orthopedic surgery DNMCH.

Patients were diagnosed on clinical and radiological basis at the Out Patient Department of orthopedics. A minimum follow up 12 weeks to the maximum duration of follow up 24 weeks. The patients for this study were obtained from out patients department of orthopedic surgery in DNMCH. All patients with complains of pain in the lower limb with radiculopathy were consider for admission. The study evaluate there was evidence of the cauda equine syndrome, progressive neural deficit. The patients were admitted to study only after failing to improve with at least two weeks of conservative

therapy that included bed rest at home, passive physiotherapy and the use of an oral NSAID and muscle relaxant.

Full informed consent was obtained before entering any patient in the study. ESIs was administered on the day after completion of the require positive radiographic studies. On the day of the procedure, patients were shifted to the operation room. Monitoring such as pulse oximetry, non-invasive blood pressure and electrocardiograph, were established. Patients were preloaded with 500ml of Ringer Lactate after establishing intravenous access. Epidural injection in all cases given in the affected lumbar intervertebral space in the sitting position using an 18-gauge Tuohy epidural needle. After locating the epidural space loss of resistance technique an injection of 8 ml volume (2 ml 2% Lidocaine + 4 ml Normal Saline+ 2ml Methyl prednisolone) were injected into the epidural space.

The patients were allowed out of bed as they wished two hours after the epidural injection. All patients were discharged twenty four hours after injection, with instruction to continue activities as their symptoms permitted. All patients advised to take mild analgesics during the post injection period with special exercise program was employed.

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Result:

A total of 68 patients were studied. Mean age of patients was 37.5 years with a range of 25 -50 years, L_{4,5} and L₅,S₁ were the most common affected vertebral levels with radicular pain along the distribution of such nerves. Mean follow up of the patients was 18 weeks.

Table No-1, Demographic Profile of Patients

Number of Patient - 68	
Sex	
Male	28
Female	40
Age (Years)	
Range	25-50
Average	37.5
Primary Symptom of Leg Pain	
Left Leg	38
Right Leg	30
Average Hospital Stay (Hours)	
	24
Length of Follow Up (weeks)	
Average	18
Minimum	12
Maximum	24

Table No -2, Complications of ESIs

Dural Puncture	2 (2.94%)
Nausea and Vomiting	11 (16.18%)
Painful Injection side	2 (2.94%)
Raised BP	1 (1.47%)
Raised Headache	4 (5.88%)

Table No -3, The Result of Treatment

Excellent	Complete Resolution of Symptom	38 (55.88%)
Good	50-70% Resolution of Symptom	20 (29.41%)
Poor	No Improve or Less than 50% Symptom Relief	10 (14.71%)

Discussion :

Pain due to disc protrusion is thought to arise from the release of arachidonic acid metabolites namely prostaglandin E₂, thromboxane, phospholipase A₂, tumor necrosis factor, and interleukin from herniated disc cells. Close proximity of herniated disc cells to nerve roots may sensitize the roots to pain. A combined treatment modality including bed rest, physiotherapy and medications (analgesics and muscle relaxants) with epidural steroid injections provide a better outcome than any single modality used in isolation. Use of epidural steroid injections for treatment of acute or chronic pain syndrome has its proponents. The belief is that use of corticosteroid in these conditions helps to decrease inflammation either by decreased synthesis or release of proinflammator substances, as well as causing a reversible local anesthetic effect.

Epidural steroid injections in the management of lumbar radiculitis The three routes of entry to the epidural space are transforaminal, interlaminar and caudal. The interval between injections varies with the steroid preparation used. Because injection methylprednisolone has been reported to remain in situ for approximately 2 weeks, the clinician should consider waiting approximately 2 weeks after the injection to assess the patients response and to determine if it would likely be beneficial to administer a repeat injection. However, these 2 weeks interval may be reduced if a different (short-acting) steroid is used or if the clinical scenario warrants an earlier performance of the repeat epidural. In general, however, routine performance of a predetermined fixed number of epidural injection procedures should be discouraged.

Studies have suggested that dependant on the particular clinical scenario, the total dose of methylprednisolone should probably not exceed approximately 3 mg/kg of body weight, in order to prevent excessive salt and water retention. For interlaminar ESIs, the typical corticosteroid doses are 12-

18mg for betamethasone and 80-120 mg for methylprednisolone. Half of these steroid doses are generally used when performing transforaminal ESIs. The epidural steroid is injected in diluents, such as lidocaine (2%) and/or normal saline.

The volume of the injection is dictated mainly by the approach used. In cervical and thoracic epidural injections, a total of 8-10ml may be used for ESIs employing the interlaminar approach. However, in cervical and thoracic transforaminal ESIs, clinicians generally use a total volume of only about 3-4ml. The volume of lumbar ESIs is slightly greater, generally being 8-10ml for interlaminar ESIs, up to 20ml for caudal ESIs, and 3-4ml for transforaminal ESIs.

Conclusion :

Epidural steroid injections (ESIs) are effective and safe providing short and long term pain relief for sciatica and LBP when proper patient selection and contemporary techniques are used. Surgery should be reserved for those who do not respond to non-surgical treatment or have serious neurological compromise. ESIs are most effective during the acute phase of pain and inflammation.

A relatively small volume (8ml) was used for the epidural injection in this study. There are no major complications attributable to the injections. The success rate in our study was also encouraging, with pain relief in up to 85.29% of our patients. This technique provides good pain relief in patients with lumbar radiculopathies for no surgical management of pain. Epidural steroid injections in the management of lumbar radiculitis

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