

Epidural steroid for low back pain in pain management clinic

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Background: Epidural steroid injection for chronic low back pain is the most common procedure performed in the pain management clinics. This study was conducted to evaluate the efficacy of epidural steroid injection for various causes of low back pain in the patients attending pain management clinic (PMC) of this institute.

Methods: This is a prospective observational study of the patients attending in pain management clinic with the complaints of low back pain in the year 2007. All the patients who were treated with the epidural steroid injections were enrolled in the study. Data regarding the age of the patients, frequency of steroid injections, outcome of the procedure and complications if any were noted.

Results: Majority of the patients attending the PMC complained of low back pain. (Table 1) Among them 74% of the patients had prolapsed intervertebral disc. Among these, 97 patients received epidural steroid injections, among which 34 (35%) patients received single dose only whereas 38 (39%) and 25 (26%) patients received second and third dose of steroid.

Among the patients who received epidural steroid, 50 (51%) had significant relief of the symptoms and signs, whereas 18 (19%) patients had moderate relief, 8 (8%) patients had no relief and follow up (FU) was lost in 22 patients (22%).

Conclusion: It is concluded that the interlaminar epidural steroid injection for lumbar radicular pain is an effective method of treatment.

Key Words: Low back pain, epidural, steroid, interlaminar

Introduction

Low back pain is a major cause of morbidity in a population and causes significant detrimental effect personally and to the society. In United States only, it is the second most common cause for visit to physician, third cause for the surgical indication and fifth cause for hospital admission and posed health care cost of US \$ 26.3 billion per year.¹

Different studies have highlighted the fact that outcome of epidural steroid injections for definite pathologies of low back pain like prolapsed intervertebral disc (PVD),

degenerative disc disease and spinal canal stenosis are comparable to the surgical intervention with similar long term follow up.^{2,3,4}

This study was carried out to analyze the efficacy of epidural steroid injection in the patients attending in pain management clinic in this institute.

Materials and Methods

This is a prospective observational study of the patients attending pain management clinic with the complaints of

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low back pain for different reasons like PIVD, degenerative disc disease, spinal canal stenosis and spondylolisthesis and were treated with the epidural steroid injection.

The history and investigations of the patients' were reviewed on attendance in the PMC. The variables of the patients' like age, sex, referred department and institute, initial visual analogue score (VAS) scale, functional disability due to pain, sleep disturbances and past or ongoing treatments were noted in the history sheet. General examinations of the patients were done with specific reference to spine and lower limb motor sensory examinations. Any neurological findings, motor or sensory, were noted.

Patients under medication with aspirin, clopidogrel, and warfarin were advised to stop the medications a week before the procedure. They were given epidural steroid only after the coagulation status was within normal limits. Similarly patients with local infection at the site of injection were not given epidural steroid.

Written consent was taken before the procedure in the operation theatre and the baseline vitals (blood pressure, heart rate) were noted.

Epidural steroid was given in operation theatre (OT) under all aseptic measures. The patients were positioned either in the lateral or sitting position. The patients who had difficulty in sitting position due to pain were laid in lateral position during the procedure. Epidural space was identified with 18 Gz Tuohy needle with loss of resistance to air. After the identification of the epidural space and negative aspiration of blood and cerebro spinal fluid (CSF), hyaluronidase 1500 IU, methylprednisolone 80 mg with lignocaine 0.5 % with total volume of 6 ml was given. Post procedure vitals were also noted. Patients were discharged after about an hour, with advice of normal activity but avoiding lifting heavy objects, non steroidal anti-inflammatory drugs (NSAIDs, combination of paracetamol and ibuprofen) for 5 days. The patients were asked to attend PMC after a week.

On follow up of the patients, they were asked for the improvement in the symptoms with relation to VAS scale, improvement in functional status and night sleep. Any complications like increased pain or numbness, soreness at the site of injection, flushing and headache were also enquired and noted if experienced. The frequency of the epidural steroid injection at the time of visit was also noted.

Results

The total number of patients attending in PMC was 182, out of which 110 (61%) presented with the complaints of low back pain. Among the low back pain group majority

were due to PIVD (74%), where as spinal canal stenosis was the second most common diagnosis made (12%). The others in descending order of numbers were non specific back pain, spondylolisthesis, failed back surgery syndrome (FBSS). There were equal incidence of patients with degenerative disc disease, kyphoscoliosis and cord atrophy (Fig.1)

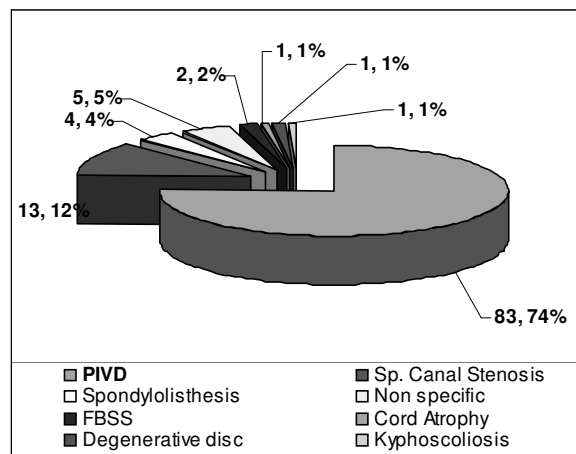


Fig. 1: Low back pain patients in PMC

Among these, 97 patients received epidural steroid injections, among which 34 (35%) patients received single dose only whereas 38 (39%) and 25 (26%) patients received second and third dose of steroid. (Fig. 2)

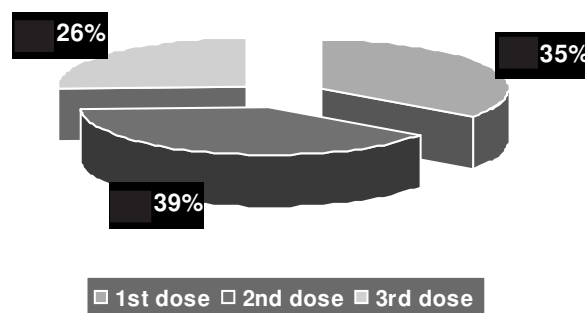


Fig. 2: Frequency of epidural steroid

Among the patients who received epidural steroid, 50 (51%) had significant relief of the symptoms and signs, whereas 18 (19%) patients had moderate relief, 8 (8%) patients had no relief and follow up (FU) was lost in 22 patients (22%). (Fig. 3) We presumed that the FU may be lost because patient might had significant pain relief or unsatisfactory pain relief which might have led them to other treatment

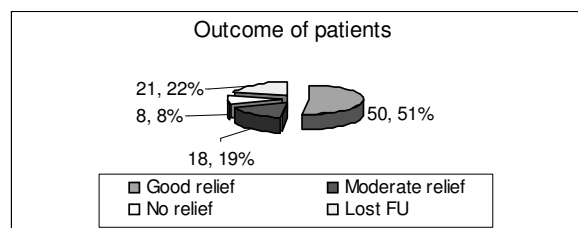


Fig. 3: Outcome of patients receiving epidural steroid

modalities.

20 patients had minor complications like soreness of back (20%) and flushing (8%) after the procedure. These complications were transient and subsided during the follow up visit.

Discussion

Low back pain is a major cause of morbidity in a population. According to a study carried out in United States, it is the second most common cause for visit to physician, third cause for the surgical indication and fifth cause for hospital admission and posed health care cost of US \$ 26.3 billion per year.¹

Low back pain may be caused by myofascial pain, PIVD, spinal canal stenosis, lumbar spondylosis, spondylolisthesis and/or facet syndrome, along with few other rare causes like infections, neoplasm and metastasis, rheumatic conditions and other metabolic disorders.²

In the patients experiencing backache with radiation towards one of the lower limbs PIVD is the most common followed by spondylolisthesis, fractures, spinal canal stenosis, dislocations and cauda equina syndrome.³

Epidural steroid is found to be beneficial in PIVD, spinal canal stenosis and degenerative disc disease, where as in non specific back pain, facet syndrome, metastatic and metabolic causes; it is found to have no benefit.^{4,5}

Epidural steroid injection following epidurography (fluoroscopic guidance) is found to be superior to the blind technique.⁶ It is found that in 30 – 70 % of the cases there is inappropriate placement of the drug during epidural steroid injection even with the hands of experienced performer.⁶ Fluoroscopic guidance gives the added advantage like if there is unilateral spread of the dye in the contra lateral side, the needle can be manipulated. Sometime there is no spread of the dye beyond the foramen due to tight compression of the nerve in which condition transforaminal injection of the steroid is helpful. Though the short term effect (i.e. < 6 weeks) is superior in the transforaminal method than the interlaminar or interspinous technique of epidural

steroid deposition, the long term outcome is found to be similar.⁷

There are several types of steroid being used for epidural steroid like hydrocortisone, betamethasone, triamcinolone and methylprednisolone. However different studies have failed to prove superiority of one steroid above the other.^{8,9,10} We are using methylprednisolone 80 mg as it has relatively long duration of action.¹⁰

Regarding the volume of injectate, Winnie et al have found that high volume does not have significant benefit over the low volume.¹¹ However it is found that the minimum volume should not be less than 4 ml. The volume of drug injected helps in flushing out the local inflammatory mediators and breaks the adhesions too.⁶ Though the local anesthetics like bupivacaine or lignocaine are used along with epidural steroid, there is no added advantage by adding local anesthetic. Theoretically it has beneficial effect of breaking the vicious pain cycle associated with back pain. One practical benefit is that if sensory and/or motor block is noted, then it gives us clue about the proper placement of the epidural drug.

G.J. MacCleane et al have found that caudal epidural injection of hyaluronidase in cases with failed back surgery syndrome (FBSS) resulted in significant reduction of VAS score from 8.5 to 5.¹² Devulder J et al also demonstrated in their study that the hyaluronidase in the epidural space for cases with low back pain with sciatica resulted in significant reduction of VAS score.¹³ These studies justifies the use of hyaluronidase with the steroid for epidural injection.

Hickey et al have demonstrated that there is 17% relief with the first dose and second dose and third dose provides relief consecutively in 44% and 39% of the remaining patients respectively.¹⁴ More than three doses are not helpful and three doses are given at intervals of 3 – 4 weeks. However if significant relief is obtained three dosing intervals are not mandatory.¹⁵

The success rate also depends upon the duration of the back pain. For the duration less than 3 months, the success rate is 83 – 100 %, and the success rate declines as the duration of symptoms increases.^{10,15}

The complications noted were very less. 12% of patients complained of soreness at the injection site after the procedure which subsided with NSAIDs. 8 % of the patients also complained of facial flushing which subsided spontaneously. The incidence of soreness at the injection site and flushing is similar to the study reported by Manchikanti et al. However they have also reported other complications like headache, dizziness, nausea and vomiting, fever and muscle spasms.¹⁶

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Yang et al have demonstrated in their study that lumbar transforaminal steroid injections reduce the need for lumbar surgical decompression.¹⁷

The limitation of this study is that the patients who might have undergone surgery despite epidural injections could not be followed up and included in the study.

Conclusion

We conclude that the interlaminar epidural steroid injection for lumbar radicular pain is an effective method of treatment. However the frequency of dose of epidural steroid injection may vary depending upon the outcome of the procedure.

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