Management of Low Back Pain by Administration of Epidural Steroid Injection

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Abstract
The likelihood of experiencing an episode of low back pain increases with age, and 85% of people will have at least one episode in their lifetime. Prevalence of low back pain is next only to headache. Total 50 patients (28 male and 22 female) who met the inclusion and exclusion criteria underwent epidural steroid injection. Patient pain scaling is done before performing the procedure, after 48 hours, after 2 weeks, after 3 months of the procedure. The proposed pain scale to be used is Numerical Rating Scale.

Out of total 50 patients, after 48 hours it was found 30 patients had mild pain (NRS 1-3), 18 patients moderate pain (NRS 4-6) and 2 patients continued to have severe pain (NRS 7-10). After 2 weeks it was found 24 patients to be mild pain, 24 patients with moderate pain and 2 patients with severe pain. After 3 months it was found 14 patients had mild pain, 32 patients had moderate pain and 4 patients had severe pain.

The effect of epidural steroid injection decreases with time. The local effect of steroids has been shown to last at least 2 to 3 weeks at a therapeutic level.

Epidural Steroid Injection is a safe, effective, & economical treatment modality for LBP. It reduces the period of hospitalization, analgesic intake & facilitates the institution of early rehabilitative programs.

Keywords: Low Back Pain; Conservative Management; Epidural Steroid Injection
their effects by limiting inflammatory response, inhibiting leukocyte aggregation, preventing degranulation of inflammatory mediators, stabilizing lysosomal and other membranes, and reducing the synthesis and release of proinflammatory factors.\textsuperscript{5,6}

**Materials and Methods**

The present study is a Prospective Analytical study on 25 patients in department of Orthopaedics, Sri Adichunchanagiri Hospital and Research Centre, B.G. Nagara, Nagamangala.

Patients meeting the inclusion criteria were selected from all patients attending AHRC OPD and admitted indoor. The patients were evaluated and followed up according to the protocol.

**Inclusion Criteria:**
1. Patients who are not relieved of their low back pain by conservative management and they are not candidates or willing for spinal surgery.
2. Age \(>18\) years and \(<70\) years
3. SLRT value between 40 to 70 degree
4. Willing to participate and after proper informed consent

**Exclusion Criteria:**
The patients with the following symptoms were excluded from study
1. Patients with progressive motor deficit
2. Patients with multi-level degenerative spine disease, unstable spine, vertebral compression fractures, spondylolisthesis, cauda equina syndrome and arachnoiditis
3. Previous lumbar spine surgeries or epidural steroid injections.
4. Patient with history of allergy to steroids and local anaesthetic agents.

The proposed pain scale to be used is Numerical Rating Scale.

![Numerical Pain Rating Scale](image)

Patient pain scaling is done before performing the procedure, after 48 hours, after 2 weeks, after 3 months of the procedure and compared with the previous pre-procedure result.
MRI showing diffuse annular disc bulge at L₄-L₅ level
MRI showing at L₄L₅ level mild diffuse disc bulge indenting on ventral aspect of the cal sac and at L₅S₁ level posterior tear with diffuse asymmetrical disc bulge
Positioning of patients

Identification of epidural space
Injecting the mixture of methyl prednisolone, bupivacaine and normal saline.

**Results**

The following results of study were compiled after follow up of 50 patients:

1) **Sex distribution of the study group** is as follows:
   - Male – 28
   - Female – 22

2) **AGE distribution of the study group** is as follows:
   - 20-30 years – 12
   - 31-40 years – 20
   - 41-50 years – 4
   - 51-60 years – 10
   - 61-70 years – 4
   - >70 years – none

3) **Duration of symptoms of the study group** is as follows:
   - <6 month: 6
   - 6 month – 1 year: 8
   - 1 year – 3 year: 26
   - 3 year -5 year: 8
   - >5 year: 2

4) **ASSOCIATED RADICULOPATHY of the study group** is as follows:
   - Right sided: 14
   - Left sided – 10
   - Bilateral – 8
   - No radiculopathy – 18

5) **Numeric Rating Scale**

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<tbody>
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<td>Pre op</td>
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<td>6</td>
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</tbody>
</table>

6) **Positive Patrick Test**

The following people had positive patricks test

- Pre op – 10
- After 48 hours – 4
- After 2 week-6
- After 3 month – 6

7) **Positive SLRT test between 40 to 70 degree:**

Positive SLRT test between 40 to 70 degree of the study group.
8) MRI findings:

<table>
<thead>
<tr>
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<th>Bilateral SLRT 40-70 degree</th>
<th>Unilateral SLRT 40-70 degree</th>
<th>Total</th>
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<tbody>
<tr>
<td>Pre op</td>
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<td>10</td>
<td>16</td>
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<td>After 48 hours</td>
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<td>After 2 weeks</td>
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<tr>
<td>After 3 months</td>
<td>4</td>
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Diffuse disc bulge noted at:
- L3L4 + L4L5 – 4
- L4L5 + L5S1 - 14
- Isolated L4L5 – 20
- Isolated L5S1 - 12

Discussion

From the above results we find that the effect of epidural steroid injection decreases with time. There are several factors for varied results like patient selection, patient’s individual interpretation of level of pain, regular follow up and the degree up to which patient follows post injection advice of doctors. The local effect of steroids has been shown to last at least 2 to 3 weeks at a therapeutic level. This therapeutic decay prompted many physicians to recommend multiple injections. The acceptable time interval between two injections is still debatable but some studies have shown that 7-10 days interval is appropriate. Only few of our patients reported with local pain over the injection site and headache, which subsided with conservative treatment. There have been reports of epidural abscess, epidural hematoma, and duro-cutaneous fistula, bacterial meningitis and post-dural puncture headache. None of these were seen in our study.

Conclusion

Epidural Steroid Injection is a safe, effective, & economical treatment modality for LBP. It reduces the period of hospitalization, analgesic intake & facilitates the institution of early rehabilitative programs. We recommend Epidural Steroid Injection as a conservative mode of treatment of back pain with or without radicular symptoms not responding to other modes of conservative treatment.

Shortcomings of the study:
Inadequate sample size.
Non availability of control group

Acknowledgement

I would like to express my deepest appreciation to all those who provided me the possibility to complete this study. I would like to acknowledge with much appreciation the crucial role of the staff Dr (Prof) Abdul Ravoof, HOD, Department of Orthopaedics, who gave the permission to use all required equipment and the necessary materials to complete the study.

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Ethical clearance: Approved

References