

Epidural Steroid Administration for Chronic Low Back Pain

WARAPORN WAIKAKUL, M.D.
AMARA PANICH, M.D.
KANYIKA CHUMNIPRASAS, M.D.

Department of Anesthesiology and Department of Orthopaedic Surgery, Prince of Songkla University, Songkla, Thailand

Abstract : As epidural steroid injection for low back pain is still popular among the clinicians, we would like to express our experiences with 52 patients. Eighty milligrams of depo-methylprednisolone (depo-M) and 0.5 percent of marcaine in the total amount of 5 ml. was used. In disc herniation and disc degeneration most of the patients achieved good result, but the effect of pain relief did not last long. The result was poor in recurrent back pain after surgery while most of the spinal stenosis patients achieved good and rather long lasting pain relief.

INTRODUCTION

Epidural steroid administration is one of the method in treating chronic low back pain syndrome which is caused by degenerative and mechanical conditions of the spine. Although it is a palliative treatment, it can assist the body or the nature of the spine to adapt to the spinal pathology, so the pain and neurologic lesions can be subsided. Our purpose is to express our experiences in the treatment of chronic degenerative low back pain which had not responded to the intensive conservative treatments, and surgical procedures have not been accepted by the patients or not justified.

MATERIALS AND METHODS

From 1985 to 1989, there were fifty two patients who had chronic low back pain underwent epidural steroid injection. All of the patients had low back pain with or without leg pain, and with mild or no neurological deficit for more than 3 months. These patients did not respond to intensive conservative treatments for 3 months or more which included rest, physical therapy, antiinflammatory drugs and analgesics. All patients had been completely re-examined both physically and laboratory tests including, complete blood count, ESR, plain films of the lumbosacral spine and chest, CT and myelography of the lumbar spine, urine examination and ultrasonogram of the lower abdomen, to exclude neoplasm and infection of the spine and related organs. Bone scans were performed in eight patients to exclude malignancy. The final diagnosis of the patients could be classified into 4 categories, 1) disc herniation, 2) disc degeneration, 3) spinal stenosis and 4) recurrent back pain after discectomy (table 1.). Of the thirteen disc herniated patients, nine had mild neurological deficit such as : mild weakness of the specific muscles, hypoesthesia on the corresponding dermatomes, and positive SLRT of about 60 degrees. Disc degenerations were diagnosed in 12 patients and

Table 1 Biography of the patients.

Diseases	Disc Herniation	Disc Degeneration	Spinal Stenosis	Recurrent Back Pain Post Operation
Male	8	8	6	5
Sex (no.) Female	5	4	15	1
average	34	39	55	44
Age (yr.) range	17-60	22-60	29-54	22-65
Neurological deficit	9	-	3	3
Total	13	12	21	6

all had no significant neurological deficit. In twenty one spinal stenotic patients, three of them had neurological deficit which demonstrated more than one root involvement and one had mild degenerative spondylolisthesis of L4 on L5. Three patients following discectomy had mild neurological deficit and one had minimal injury on his back before recurrent back pain started. The 5 ml. solution of 80 mg depo-M and 0.5 percent marcaine was administered into the epidural space of L3-L4, L4-L5 or L5-S1. After the injection, the patients were transferred to their wards or discharged. Analgesics and non-steroidal antiinflammatory drugs were continued as before the injection. The patients were follow up periodically every second week for 12 weeks. The patients who failed to respond to the first injection were evaluated by using the visual analog scale, 0 to 10, and cut off point was 50 percent reduction of pain. Two weeks after the first injection, 7/13 (54%) of the disc herniation group had more than 50 percent improvement of pain score. In the disc degeneration group 9/12 (75%) had more than 50 percent of pain reduction significantly. In spinal stenosis group, 18/21 (86%) had significantly reduction of pain. The injections were helpful in only 3/6 (50%) in the group of failed back surgery (table 2). At 3 months, only five patients (38%) of the disc herniation group had more than 50 percent pain reduction, and five patients who failed to respond to the first injection underwent second injection and only 2 had some pain relief (table 3). In disc degeneration, one patient had more than 50 percent pain reduction. Five of the spinal stenotic patients underwent second injection and three of them had nearly pain free. One patient in the failed back category subjected that the second injection is helpful. (table 4).

DISCUSSION

The patients who had acute low back pain for less than 4 weeks which is caused by mechanical and degenerative processes usually have great possibility of spontaneous resolution². Most patients, especially without neurologic deficit, do response well to the conservative treatment. However, prolonged pain can cause more problems and need more invasive treatments.

Most authors agreed that epidural steroid injection gave good pain relief in acute disc herniation and disc degeneration but the results did not last long²⁻⁴. In our experiences, the symptoms of disc degeneration responded well to the injection, the relief may lasted up to 6 months. Since the disease produced only inflammation of the nerve root without any significant mechanical pathology, epidural steroid injection can give encouraging result. Nevertheless, in the disc degenerations only 5 of 13 patients get good pain relief at 3 months after the first injection, although 7 of 13 seemed to respond well in the first two weeks. This showed that epidural steroid injection was rather the palliative treatment in disc herniation. It could decrease pain and allow the patient to have better quality of life before surgical treatment was indicated. Most of the authors did not recommend epidural steroid injection in spinal stenosis^{4,5}. Spinal stenosis is a complex degenerative changes and the treatment is still controversial. In our experiences epidural steroid gave a persuasive result. The injection might reduce inflammation and edema and allow the spine and neural elements to readjust or compensate the degeneration process. Although serious complication are

Table 2. Results at 2 weeks after the first injection.

	Disc Herniation	Disc Degeneration	Spinal Stenosis	Recurrent Back Pain After Surgery
> 50% Pain Relief	7	9	18	3
< 50% Pain Relief	6	3	3	3
Total	13	12	21	6

Table 3. Results at 3 months after the first injection.

Pain Relief	Disc Herniation	Disc Degeneration	Spinal Stenosis	Recurrent Back Pain After Surgery
> 50%	5	10	14	3
< 50%	8	2	7	3
Total	13	12	21	6

Table 4. Results at 2 weeks after the second injection

Pain Relief	Disc Herniation	Disc Degeneration	Spinal Stenosis	Recurrent Back Pain After Surgery
> 50%	2	1	3	1
< 50%	3	1	2	2
Total	5	2	5	3

not common but epidural abscess has been reported so the medication should be administered with great care⁶⁻⁹.

In recurrent pain after back surgery, the result were not persuasive as only half of the patients received good results. The others, who failed to had improvement after injection, underwent reoperations later on and two of them had retained disc material which had satisfactory improvement after surgery. The third patient had disc herniation at L5-S1 space. We suggested that if the patients had recurrent back pain after surgery and did not response to one epidural injection within

two weeks, reexploration should be considered¹⁰. In conclusion, we found some benefit of this technique. It reliefs pain more than 50 percent in more than half of the patients with disc herniations and disc degenerations but for rather shorter period in the former group and fairly long in the latter. So the injection should be one of the palliative treatment in these groups of patients. Surprisingly, epidural steroid injection provided good pain relief in patients with spinal stenosis despite inapplicable recommendation.

REFERENCES

1. Benson HT. Epidural steroid injection for low back pain and lumbosacral radiculopathy. *Pain* 1986;24:277-95.
2. Bogduk N, Cherry D. Epidural corticosteroid agents for sciatica. *Med J Australia* 1985;143:402.
3. Warfield CA, Crews DA. Work status and response to epidural steroid injection. *J Occup Med* 1987;29:315-6.
4. Anderson KH, Mosdal C. Epidural application of cortico-steroids in low back pain and sciatica. *Acta Neuro Chir* 1987;87:52-3.
5. Rosen CD, Kahanovity N, Bernstein R, et al. A retrospective analysis of the efficacy of epidural steroid injections. *Clin Orthop* 1988;228:270-2.
6. Sevai EA, Rosen M. An attempt to develop a model to study the effects of intrathecal steroids. *Eur J Anesthesiol* 1986;3:127-36.
7. Goucke CR, Graziotti P. Extradural abscess following anesthetic and steroid injection for chronic low back pain. *Br J Anesth* 1990;65:427-9.
8. Motsch J, Hubchenreuter K. Cutaneous cerebrospinal fluid fistula associated with secondary puncture of the dura caused by a peridural catheter. *Reg Anesth* 1984;7:74-6.
9. Jacobs S, Pullan PT, Potter JM, et al. Adrenal suppression following extradural steroid administration. *Anesthesia* 1983;38:953-6.
10. Warfield Ca, Crews DA. Epidural steroid injection as a predictor of surgical outcome. *Surg Gynecol Obstet* 1987;164:457-8.