

Research Article

Analysis of SNRB in patients with lumbar radiculopathy resistant to conservative treatment

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ABSTRACT

Background: The transforaminal application performed with SNRB (Selective nerve root blocks) should be more accurate. Moreover, the amount of corticosteroid and local anesthetic can be reduced compared to the amount of these agents administered with the epidural steroid.

Methods: Prospective study of 72 patients with low back pain done in Sri Ramachandra medical centre, Chennai during April 2012 to April 2014. 46 patients were diagnosed to have inter vertebral disc and 26 patients with Lumbar canal stenosis. The patients were evaluated using VAS score and Oswestry disability index. The indication and determination of the therapeutic SNRB level was established by the spine surgeon after all the diagnostic test results had been obtained and after a detailed discussion with the patient. After confirming the correct placement of spinal needle with a short bevel with the help of contrast, a solution of 1ml of 0.5% sensorcaine with 1 ml of triamcinolone acetone (Inj. kenocort) is injected.

Results: Only 2 patients out of 72 had persistent pain and underwent surgery. 60 of our patients were comfortable and were able to proceed with their normal life/day to day activities following the administration of one block.

Conclusion: Selective nerve root block is effective and less invasive intervention, and serves as an adjunct to non-operative treatment. The blocks give the best result in disc herniation cases, followed by favorable results in foraminal stenosis.

Keywords: Spinal nerve root block, Intervertebral disc prolapsed, Canal stenosis

INTRODUCTION

Low back pain is a common, benign, self-limiting disease that affects almost all persons with a lifetime prevalence of upto 84%.¹

In contrast, sciatica affects only 40% of all persons in the western industrialized countries.² On the basis of recent concepts of pain generation in sciatica, it is assumed that it is not the mechanical compression alone but rather a concomitant chemical irritation of the nerve root caused

by disk material that is the decisive factor for the development of severe sciatica.³⁻⁵

Therefore, local application of corticosteroids in the area of the compressed and inflamed nerve root appears to be a reasonable treatment option. The transforaminal application performed with SNRB (Selective nerve root blocks) should be more accurate in this regard. Moreover, the amount of corticosteroid and local anesthetic can be reduced compared to the amount of these agents administered with the epidural steroid. Fluoroscopy

guided therapeutic SNRB is therefore a good procedure for non-operative therapy of intractable sciatica.⁶

METHODS

Prospective study of 72 patients with low back pain done in Sri Ramachandra medical centre, Chennai during April 2012 to April 2014. Thirty-eight of them were females rest were males. Forty six patients were diagnosed to have inter vertebral disc and 26 patients with Lumbar canal stenosis. The inclusion criteria were patients over the age of 21, lumbar radicular pain with a disc herniation or central, foraminal stenosis without neurological deficit, in patients who have completed their 6 week trial of non-operative management and had no relief and with minimal follow up of 1 year. The exclusion criteria were pediatric age group, cauda Equina Syndrome, neurological deficit, infective causes, acute trauma, hypersensitivity of patient to the drug used, lack of radiologically detectable abnormality, lack of substantial radicular pain as the presenting symptom and patients who have already undergone surgery on their lumbar spine. Patients will also be excluded from the study if he/she goes in for surgery midway through the study. The patients were evaluated using VAS score⁷ and Oswestry disability index.⁸

The indication and determination of the therapeutic SNRB level was established by the spine surgeon after all the diagnostic test results had been obtained and after a detailed discussion with the patient. During the discussion, all queries by the patients were answered and if the patient is still willing to pursue the proposed line of treatment and shows willingness to be included in our study, a written consent is obtained from the patient and his/her attenders. An ethical committee clearance to proceed with the study has also been obtained.

Patient is placed in the floppy lateral position with the painful side upwards or prone position with C-arm in 45 degree rotation. Confirmation of proper positioning of the subject is done by taking a C-arm shot which shows the characteristic "Scotty dog" appearance. 1% xylocaine is infiltrated 10cm lateral to the midline and just above the level of the transverse process of the appropriate vertebra. After confirming the correct placement of 22 gauge x 4.75 inch spinal needle with a short bevel with the help of contrast, a solution of 1ml of 0.5% sensorcaine with 1 ml of triamcinolone acetonide (Inj. kenocort) is injected. While injecting, the patient is asked about the similar radicular pain which they get because of nerve root compression. Patient is observed for the next 2 hours for any weakness or any side effects of the injection.

Patient is discharged on the same day. A 2-3 day non-renewable prescription for a narcotic pain reliever and/ or a muscle relaxant is given to the patient. Adhesive bandages maybe applied to the patient's back, which should remain dry for atleast 24 hours, following which it can be removed. Patients are instructed to continue to

take their prescription medication, although pain medication maybe tapered as indicated. The patient is allowed to choose to receive as many as 4 injections at any time within the follow up period. The injection therapy is considered to be failed if the patient opted for operative treatment. Patient is followed up at 3 weeks, 6 weeks, 3 months, 6 months, 9 months and 1 year interval, and ODI and VAS score outcomes are compared with previous visits.

RESULTS

Only 2 patients out of 72 had persistent pain and underwent surgery. 60 of our patients were comfortable and were able to proceed with their normal life/day to day activities following the administration of one block. Only 11 of them have required more than one SNRB. Out of this 1 patient underwent surgery after receiving in total of three blocks. Therefore, the number of patients who had total of two blocks was 10.

A total of 26 cases of lumbar canal stenosis were studied, of which 6 had central canal stenosis and 20 had foramina stenosis. Of the 6 cases of central stenosis, 1 of them required 3 blocks which failed and then proceeded for surgery. A total of 2 patients required 2 blocks and 3 patients had excellent results following a single block. Of the patients with foraminal stenosis, none of them required surgery. 3 of them required subsequent blocks and 17 of them had excellent results following the single block.

Forty six cases of IVDP were studied. Out the 22 patients having disc bulge studied in the study period of 1 year, only 1 of them required a second block. None of them required surgery. Out of the 17 disc protrusion patients studied, 3 of them required a second block. Out of the 7 patients having disc extrusion studied, 4 of them did well following one block and 2 of them required second block. One patient underwent surgical decompression.

DISCUSSION

In 1997, a prospective study by Weiner and Fraser⁹ investigated the success of selective nerve root block in 30 patients with foraminal and extra-foraminal disc herniation. They concluded that in total, 22 of 28 patients (79%) had a substantial and permanent pain reduction during a 1-10 year follow up (Average follow-up: 3.4 years).

In our study disc herniation and lumbar canal stenosis were included as study groups, and we found that from our overall group of 72 patients, all our patients had immediate relief following the first block (to varying degrees), and 61 patients (87%) had a substantial pain reduction throughout the 1 year period that they were followed up. The results are comparable but in their study there is no mention of the breakup of the time intervals

for follow-up, so we have to follow our patients to confirm whether the pain scores go down or not.

In 2001, Martin Narozny and Marco Zaretti et al.¹⁰ studied the effectiveness of nerve root injections in 30 patients and found that 60% of them had permanent resolution of pain and successfully avoided surgery over an average of 16 month follow up period. 3.3% of them required a repeat injection. 36.7% of their subjects landed up with surgery over an average of 16 months.

In our 1 year follow-up study, we found that, of the 72 patients followed up for a period of 1 year, 3% patients landed in surgery, during the course of our follow up. One of them who was diagnosed to have a lumbar disc extrusion opted for surgery 3 weeks following the first nerve root injection although the option of subsequent nerve root injections (upto 4) were offered to her. The other patient had been diagnosed to have lumbar central stenosis and underwent surgery 10 months into the follow-up period after having received 3 nerve root injections. Our results on comparison were found to be better than 12 years back, the technique of delivering the nerve root block is becoming more precise.

Viton. JM et al.¹¹ in 1998 described the effect of nerve root injections in 40 patients in a short term assessment and found that upto 90% of them had substantial reduction in VAS scores following the nerve root injection and found that the effect lasted for the entire duration of the study (3 months) in 85% of them.

In comparison, follow up of our study groups at 3 months found that of the 72 patients followed up, 95% of our patients had substantial reduction of VAS scores while 3 of them (4%) required second blocks and 1 of them required surgery. The average VAS scores at 3 month follow up of the IVDP group dropped from 4 (pre-injection) to 1.49. And in our Canal stenosis group, the difference in VAS score values of 4.43 (pre-injection) to 1.3 at the 3 month follow up.

According to Hui CWF et al.¹² in 2005 who studied 31 patients found a decrease in the Oswestry Disability Index (ODI) from 46.20% to 25.83% and a decrease in the VAS score from 5.67-3.00%. In comparison, our study of 72 patients were followed up over a period of 1 year. Among the 46 patients in the disc herniation group, the average VAS score (pre-injection) which was 4.06 showed a substantial drop to 2.28 at 1 year follow up. And the ODI score decreased from 48% to 38%. Of these 46 patients, 6 patients required a second block while 1 of them who was diagnosed to have disc extrusion went in for surgery.

Among the 26 patients in the Lumbar canal stenosis group, the decrease in the average VAS score was less pronounced. The average pre-injection VAS score of 4.43 decreased to 3.00. The ODI score of the same group of patients decreased from 55% to 45%.

CONCLUSION

Selective nerve root block is effective and less invasive intervention, and serves as an adjunct to non-operative treatment. Selective nerve root blocks give a short term relief and not a long term effect because of the benign natural history of the disease. The block is more accurate and less amount of corticosteroid is required because of fluoroscopic guided target point during delivery as compared to conventional epidural steroid injection. The blocks give the best result in disc herniation cases, followed by favorable results in foraminal stenosis. But the results are not so favorable in patients with central stenosis. The results are better in our study as compared to other western/ European studies. This may be because of high pain threshold for our Indian patients, as most of the patients are from rural areas and are used to more strenuous activities. The only limitation of our study is that it's only a one year follow up. We need to have a longer follow up to comment upon the long term efficacy of selective nerve root blocks.

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