COMPARATIVE PAIN SATISFACTION WITH TRANSFORAMINAL EPIDURAL STEROID INJECTION PLUS CAUDAL EPIDURAL STEROID INJECTION WITH CATHETER VERSUS TRANSFORAMINAL EPIDURAL STEROID INJECTION PLUS LUMBAR INTERLAMINAR EPIDURAL STEROID INJECTION IN PATIENTS HAVING LOW BACKACHE WITH RADICULOPATHY OR RADICULAR PAIN

Dr Hamza Waheed 1, Dr Ateeq Ur Rehman 2, Prof Khalid Bashir 1

1 Department of Anesthesia, National Hospital & Medical Centre Lahore, Pakistan

2 Department of Anaesthesia, Evercare Hospital Lahore, Pakistan

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INTRODUCTION

Chronic lumbosacral radicular pain (CLRP) is a common and challenging issue in pain and spine clinics (1). For patients who do not respond to medication or physiotherapy, epidural steroid injections (ESIs) are frequently used to alleviate radicular pain by hindering prostaglandin formation, disrupting nociceptive C fibers, and reducing nerve root swelling (2). Multiple ESI techniques exist, including transforaminal (TFESI), interlaminar (ILESI), and caudal (CESI) approaches (3). While each method has demonstrated efficacy, studies suggest that TFESI may be more effective than CESI for reducing pain from herniated discs and radicular fatigue (4). Furthermore, recent meta-analyses and systematic reviews have marginally recommended TFESI over CESI. Intriguingly, a retrospective study found that combining CESI with TFESI significantly reduced pain more than TFESI alone.

Despite these findings, prospective research on the benefits of combining different ESI techniques remains scarce.

OBJECTIVE/AIM

The objective of this study was to assess the efficacy of combining transforaminal epidural steroid injection (TFESI) with caudal epidural steroid injection (CESI) versus combining TFESI with lumbar interlaminar epidural steroid injection (LIESI) in reducing pain, anxiety, and disability in patients suffering from chronic lumbosacral radicular pain.

METHODOLOGY

This cross-sectional study at National Hospital & Medical Centre Lahore (September 2022 to September 2023) involved eighty patients with low backache, radiculopathy.

Group A received a combination of transforaminal (TFESI) and caudal epidural steroid injections (CESI) with a catheter, administering 80 mg of methylprednisolone.

Group B received TFESI combined with lumbar interlaminar epidural steroid injection (LIESI), also with 80 mg of methylprednisolone. Procedures were performed under fluoroscopic guidance, with a 16 G epidural needle and Omnipaque to ensure proper epidural flow. All procedures were conducted by a consultant in pain medicine, assisted by a trainee.

ANALYSIS

Data analysis was conducted using SPSS software. Descriptive statistics summarized demographic data. The independent t-test and chi-square test were used for group comparisons, with a p-value <0.05 considered significant. The study was approved by the institutional review board, and informed consent was obtained from all participants, ensuring adherence to international standards for reliability and reproducibility.

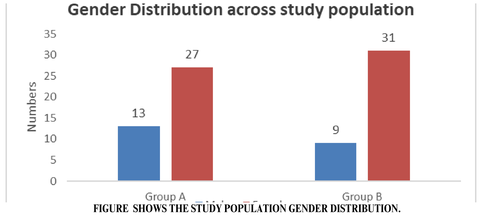

FIGURE SHOWS THE STUDY POPULATION GENDER DISTRIBUTION.

Table 1 Patient Demographics

Variable	Group A N=40	Group B N=40	P value
Mean age in years	59.4 ± 10.2	57.6 ± 11.1	0.34
Gender			
Male	13(32.5)	9(22.5)	0.52
Female	27 (67.5)	31(77.5)	0.46
Duration of pain in months	5.2 ± 3.6	4.3± 2.2	0.82
Mean BMI (kg/m$^{2)}$	29.8 ± 7.45	31± 8.32	0.12
Mean height in cm	161.4 ± 12.3	159.4 ± 11.6	0.64

Table 2 Baseline parameters before the intervention

Variable	Group A	Group B	P value
Mean NRS Score	8.2 ± 1.5	8.3 ± 1.4	0.42
Mean Hamilton Anxiety Score	13.3 ± 7.4	14.1 ± 6.9	0.12
Mean Oswestry Low Back Disability Score	39.8 ± 8.7	40.3 ± 9.2	0.34

Table 3 Parameters after the intervention

Variable	After 2 weeks	After 4 weeks	After 12 weeks	P value
Group B				
Mean NRS Score	6.3 ± 1.1	4.2 ± 0.9	3.5 ± 0.7	0.01
Mean Hamilton Anxiety Score	11.1 ± 3.2	8.9 ± 2.6	6.3 ± 2.2	0.04
Mean Oswerty Low Back Disability Score	33.2 ± 6.4	27.4 ± 4.2	22.3 ± 3.5	0.01
Group A				
Mean NRS Score	6.1 ± 1.3	4.1 ± 1.2	3.3 ± 0.9	0.02
Mean Hamilton Anxiety Score	10.9 ± 3.4	8.8 ± 2.9	6.1 ± 2.5	0.001
Mean Oswerty Low Back Disability Score	32.1 ± 6.1	26.3 ± 4.3	21.7 ± 3.8	0.03

RESULTS/FINDINGS

A total of 80 patients participated in the study, all meeting the inclusion criteria. The mean age was 59.4 years in Group A and 57.6 years in Group B, showing no significant age difference (p=0.34). The majority of the patients were female, with 58 women making up 72.5% of the study population. Both groups had comparable demographics, including BMI and height (Table 1).

Before the intervention, baseline parameters such as pain levels (measured by the Numerical Rating Scale), anxiety (assessed using the Hamilton Anxiety Score), and disability (evaluated by the Oswestry Low Back Disability Index) were similar between the groups (Table 2).

Following the intervention, significant improvements were observed in both groups (Table 3). In Group B, the mean NRS pain scores significantly decreased at 2, 4, and 12 weeks post-intervention (p=0.01), along with notable reductions in Hamilton Anxiety Scores (p=0.04) and Oswestry Disability Scores (p=0.01). Group A also showed significant decreases in mean NRS scores (p=0.02), Hamilton Anxiety Scores (p=0.001), and Oswestry Disability Scores (p=0.03) over the same time periods.

CONCLUSION

We conclude that the clinical effects of combined CESI and TFESI with catheter to TFESI paired with ILESI to treat radicular pain are more or less the same. Both methods significantly reduced the pain scores and improved the anxiety and disability status in both groups as compared to their baseline values. This study found that a combination of CESI and TFESI with catheter offered a more effective reduction of pain than TFESI and ILESI after 12 weeks.

RELATED LITERATURE

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