The effect of dexmedetomidine on lumbar epidural injection for failed back surgery syndrome

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Introduction

Failed back surgery syndrome (FBSS) is a chronic pain condition which has a considerable effect on the patient and health care system [1]. This condition may cause many social, occupational, and individual problems, so finding an effective, rapid, and less complicated method for pain control and treatment has been always desired [1]. Lumbar epidural injection of long-acting steroids is commonly used to alleviate low back pain. The duration of analgesia varies among patients with FBSS and ranges from 15 days up to 180 days[1]. Alpha-2 agonists had been shown to reduce chronic allodynia in a rat animal models, most probably through blocking pre- and postsynaptic α-2 receptors [2]. The addition of clonidine (α-2 agonist) to epidural steroid has been used to treat chronic intractable postthoracotomy pain [2].

The present study used dexmedetomidine as an adjunct to epidural steroids, as we hypothesized that the patient who received dexmedetomidine would have less pain, require lesser amount of analgesics, and have a more active lifestyle compared to those who did not.

Methods

Fifty patients suffering from severe low back pain after failed back surgery were randomly assigned to one of two groups received epidural injection of 20 ml of a mixture of either 4 ml betamethasone (14 mg) + 1 ml bupivacaine 0.05% + normal saline 0.9% (Group C) or 20 ml of a mixture of 4 ml betamethasone (14 mg) + dexmedetomidine 0.5 µg/kg + 1 ml bupivacaine 0.05% + normal saline 0.9% (Group D). The effect was evaluated using Visual Analogue Scale (VAS) of pain , analgesic requirement and Oswestry Disability Index (ODI) 2 weeks, 4 weeks, 8 weeks, and 12 weeks after injection. Side effects as hypotension, bradycardia, sedation and hypoxemia were recorded.

Results

Table (1): Visual Analogue scale of back pain

Time	Group C (n=25)	Group D (n=25)	P-Value
Pre	7.3± 2.11	7.28± 2.09	0.973
2	6.22± 1.56	4.99 ±2.21*	0.028
4	6.05± 1.6	5.01 ±2.02*	0.049
8	6.17± 1.77	5.03± 2.13*	0.045
12	6.21 ±1.61	5.16± 1.54*	0.023

Group C: control group, Group D: dexmedetomidine group, n= number of patients. Data were expressed as a mean± standard deviation.* *P*< 0.05: significant.

Table (2): Ibuprofen consumption (mg/ week)

Time	Group C (n=25)	Group D (n=25)	P value
Pre	1412± 358.77	1408± 358.14	0.969
2	1220 ±320.16	1032± 260.83*	0.027
4	1268 ±321.85	1064± 288.71*	0.013
8	1286± 322.02	1056± 262.01*	0.008
12	1290± 322.38	1020± 260.66*	0.002

Group C: control group, Group D: dexmedetomidine group, n= number of patients. Data were expressed as a mean± standard deviation. * *P*< 0.05: significant.

Table (3): Oswestry Disability Index (ODI)

Time	Group C (n=25)	Group D (n=25)	P-Value
Pre	24.16± 8.74	23.12± 8.66	0.674
2	22.01± 7.93	16.11± 7.93*	0.011
4	19.93 ±7.19	15.54± 8.01*	0.047
8	19.87 ±7.12	15.1± 7.42*	0.025
12	19.52± 6.19	15.33± 7.41*	0.035

Group C: control group, Group D: dexmedetomidine group, n= number of patients. Data were expressed as a mean± standard deviation. * *P*< 0.05: significant.

Conclusion

The present study demonstrated potential safe and effective usage of adding dexmedetomidine to epidural steroid to control pain in patient with failed back surgery syndrome, as reflected by the significant reduction of pain intensity, reduction of NSID doses, better quality of life as reported by improvement of ODI without significant adverse effects.

References

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