

ORIGINAL ARTICLE

Intra the cal dexmedetomidine for spinal anaesthesia for perianal ambulatory surgeries

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ABSTRACT:

Aim: To assess intra the cal dexmedetomidine as adjuvant for spinal anaesthesia for perianal ambulatory surgeries.

Methodology: Sixty adult patients of American Society of Anaesthesiologists physical status I and II scheduled for perianal surgeries of both genders were divided into 2 groups of 30 each. Group I patients received intra the cal 0.5% hyperbaric bupivacaine 6 mg (1.2 ml) with injection dexmedetomidine 5 µg in 0.5 ml of normal saline and group II received intrathecal 0.5% hyperbaric bupivacaine 6 mg (1.2 ml) with 0.5 ml of normal saline. The parameters such as duration of sensory blockade, motor blockade, surgery and ambulation was assessed. **Results:** There were 14 males and 16 females in group I and 13 males and 17 females in group II. The mean weight in group I was 65.7 kg and in group II was 64.4 kg, height was 158.8 cm in group I and 159.3 cm in group II, ASA grade I was seen in 15 in group I and 15 in group II and grade II was seen in 16 in group I and 14 in group II. The difference was non-significant ($P > 0.05$). The mean duration of sensory block in group I was 434.6 minutes in group I and in group II was 324.6 minutes, duration of motor block was 320.8 minutes in group I and 228.6 minutes in group II. The mean duration of surgery was 28.5 minutes in group I and 30.2 minutes in group II. The time to ambulation was 312.6 minutes in group I and 214.4 minutes in group II. The difference was significant ($P < 0.05$). Side effects recorded were Nausea/vomiting in 2 in group I and 3 in group II. Shivering seen in 1 in group I and 2 in group II, bradycardia 1 in group I and hypotension 2 in group I and 1 in group II. The difference was significant ($P < 0.05$).

Conclusion: Intrathecal dexmedetomidine provides prolonged post-operative analgesia as compared to normal saline.

Key words: Dexmedetomidine, perianal ambulatory surgeries, Saline

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INTRODUCTION

Ambulatory anorectal surgery is an appealing approach for patients and physicians due to its increased efficiency and decreased surgical costs. This coincides with a high degree of patient satisfaction in spite of challenges such as decreased contact time with the medical staff.¹ Ambulatory anorectal surgery can be successful for all parties involved with proper patient selection, the use of evidence-based perioperative care, effective postoperative pain control, patient education, and follow-up.²

Spinal anesthesia is widely used in various operations because it provides adequate analgesia, muscular relaxation with simple operation, and rapid onset of action.³ However, use of local anesthetics alone has a short duration and is inadequate for visceral pain. Various intra the cal adjuvants, such as morphine, fentanyl, ketamine, midazolam, and clonidine, are used to improve the quality and duration of analgesia.⁴ Dexmedetomidine is a selective α_2 -adrenergic receptor agonist. It has been found to prolong analgesia when used as an adjuvant to local anesthetics for subarachnoid block.⁵ Analgesic action

of α_2 -AR agonists are result of depression of the release of presynaptic C-fibre transmitters and by hyperpolarisation of postsynaptic dorsal horn neurons.⁶ More specifically, perineural DEX enhances sensory, motor, and analgesic block characteristics.⁷ Considering this, the present study assessed intra the cal dexmedetomidine as adjuvant for spinal anaesthesia for perianal ambulatory surgeries.

METHODOLOGY

A sum total of sixty adult patients of American Society of Anaesthesiologists physical status I and II scheduled for perianal surgeries of both genders were recruited in this prospective, observational study. A written consent was obtained from all patients. Ethical approval for conduction of the study was taken from institutional review board.

Demographic data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 30 each. Group I patients received intrathecal 0.5% hyperbaric bupivacaine 6 mg (1.2 ml) with injection dexmedetomidine 5 µg in 0.5 ml of normal saline and group II received intrathecal 0.5% hyperbaric

bupivacaine 6 mg (1.2 ml) with 0.5 ml of normal saline. The parameters such as duration of sensory blockade, motor blockade, surgery and ambulation was

assessed. The results were compiled and subjected for statistical analysis using Mann Whitney U test. P value less than 0.05 was set significant.

RESULTS

Table I: Demographic profile

Parameters	Group I	Group II	P value
M:F	14:16	13:17	0.98
Weight (Kg)	65.7	64.4	0.95
Height (cm)	158.8	159.3	0.82
ASA (I/II)	15:15	16:14	0.86

There were 14 males and 16 females in group I and 13 males and 17 females in group II. The mean weight in group I was 65.7 kg and in group II was 64.4 kg, height was 158.8 cm in group I and 159.3 cm in group

II, ASA grade I was seen in 15 in group I and 15 in group II and grade II was seen in 16 in group I and 14 in group II. The difference was non- significant (P>0.05) (Table I).

Table II: Assessment of parameters

Parameters	Group I	Group II	P value
Duration of sensory block (min)	434.6	324.6	0.03
Duration of motor block (min)	320.8	228.6	0.05
Duration of surgery (min)	28.5	30.2	0.92
Time to ambulation (min)	312.6	214.4	0.02

The mean duration of sensory block in group I was 434.6 minutes in group I and in group II was 324.6 minutes, duration of motor block was 320.8 minutes in group I and 228.6 minutes in group II. The mean

duration of surgery was 28.5 minutes in group I and 30.2 minutes in group II. The time to ambulation was 312.6 minutes in group I and 214.4 minutes in group II. The difference was significant (P< 0.05) (Table II).

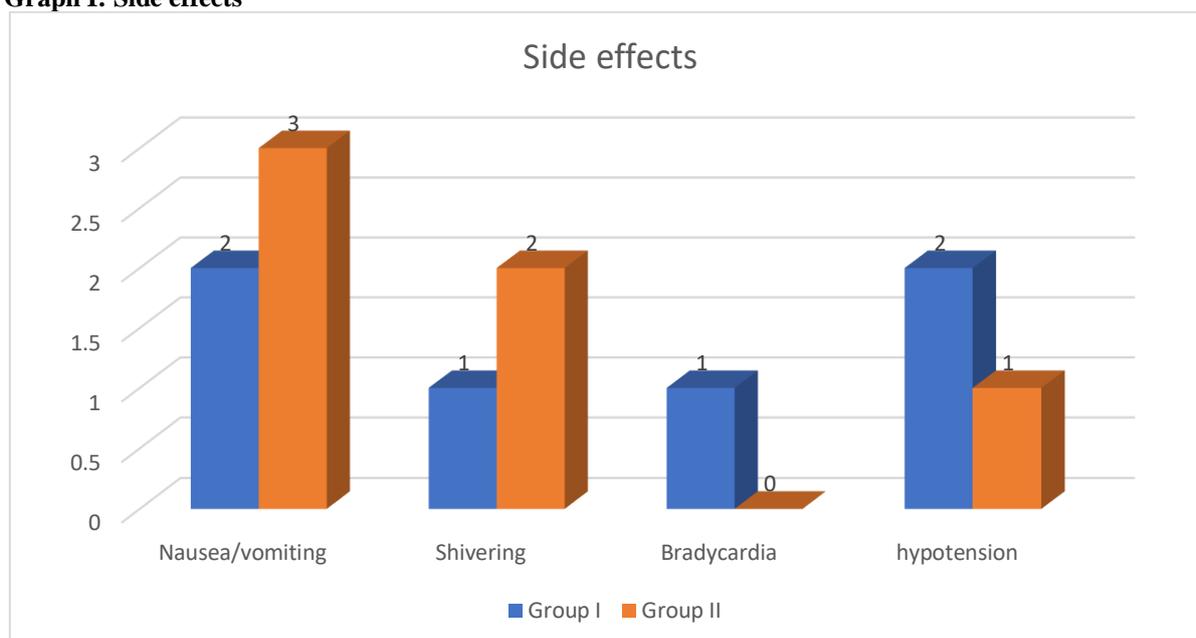
Table III: Side effects

Side effects	Group I	Group II	P value
Nausea/vomiting	2	3	0.09
Shivering	1	2	
Bradycardia	1	0	
hypotension	2	1	

Side effects recorded were Nausea/vomiting in 2 in group I and 3 in group II. Shivering seen in 1 in group I and 2 in group II, bradycardia 1 in group I and

hypotension 2 in group I and 1 in group II. The difference was significant (P< 0.05) (Table III, graph I).

Graph I: Side effects



DISCUSSION

Anorectal disease is one of the most common problems in ambulatory surgery.⁸ Surgery is the best therapy for chronic anal fissure, fistula in ano, third- and fourth-degree hemorrhoids. Since most patients are anxious about pain during and after the surgery, adequate pain control is the key success factor in all surgical settings including the ambulatory anorectal surgery.⁹ It is estimated that as many as 90% of anorectal procedures may be candidates for ambulatory surgery.¹⁰ Anorectal pathology amenable to ambulatory surgery includes anal fissures, warts, fistulas, hemorrhoids, pilonidal cysts, abscesses, and small neoplasms, among others.³ Dexmedetomidine has been used intra the cally in varying doses ranging from 3 µg to 15 µg. The optimal dose of intra the cal dexmedetomidine has not been established.¹¹ The present study assessed intrathecal dexmedetomidine as adjuvant for spinal anaesthesia for perianal ambulatory surgeries.

Our results showed that there were 14 males and 16 females in group I and 13 males and 17 females in group II. The mean weight in group I was 65.7 kg and in group II was 64.4 kg, height was 158.8 cm in group I and 159.3 cm in group II, ASA grade I was seen in 15 in group I and 15 in group II and grade II was seen in 16 in group I and 14 in group II. Gautamet al¹² investigated analgesic effects of dexmedetomidine when added to hyperbaric bupivacaine in saddle spinal block. Fifty otherwise healthy adults scheduled for uncomplicated peri-anal surgery were randomly allocated into two equal groups. Group A received hyperbaric bupivacaine five milligrams; group B received hyperbaric bupivacaine five milligrams plus dexmedetomidine five micrograms intrathecally. Patients remained seated for ten minutes. Time to first analgesic request by patients was the primary end point. Onset and extent of sensory block, and, magnitude and duration of motor block were assessed. Post-operative analgesic consumption and side effects were studied for 24 hours. Patients in group B had a significantly prolonged duration of analgesia (group B, 501 ± 306 minutes; group A, 284 ± 58 minutes) and significantly reduced analgesic requirement than patients in group A. Sensory block in first sacral dermatome appeared significantly earlier in group B. Peak sensory block, magnitude of motor block, and side effects were not significantly different between groups A and B.

Our results showed that the mean duration of sensory block in group I was 434.6 minutes in group I and in group II was 324.6 minutes, duration of motor block was 320.8 minutes in group I and 228.6 minutes in group II. The mean duration of surgery was 28.5 minutes in group I and 30.2 minutes in group II. The time to ambulation was 312.6 minutes in group I and 214.4 minutes in group II. Taher-Baneh N et al¹³ in their study ninety patients who underwent elective calf surgery were randomly divided into 3 groups. The spinal anesthetic rate in each of the three groups was 1

mL bupivacaine 0.5% (5 mg). In groups BD, BF and BS, 5 µg of dexmedetomidine, 25 µg of fentanyl and 0.5 mL saline were added, respectively. The duration of the motor and sensory blocks in both limbs and the rate of pain during 24 h after surgery were calculated. Hemodynamic changes were also measured during anesthesia for up to 90 min. The duration of both of motor and sensory block was significantly longer in dependent limb in the BF and BD groups than the BS group. Visual Analog Scale was significantly lower in the two groups of BF (1.4) and BD (1.3), within 24 hours after surgery, than the BS (1.6) group.

It was observed that side effects recorded were Nausea/vomiting in 2 in group I and 3 in group II. Shivering seen in 1 in group I and 2 in group II, bradycardia 1 in group I and hypotension 2 in group I and 1 in group II. Liu et al¹⁴ in their study a total of 1478 patients from 25 clinical studies were included. Intrathecal DEX significantly prolonged the durations of both sensory block (weighted mean difference [WMD] = 134.42 min; 95% CI, 109.71–159.13 min; P < 0.001) and motor block (WMD = 114.27 min; 95% CI, 93.18–135.35 min; P < 0.001). It also hastened the onset of sensory block (WMD = -0.80 min; 95% CI, -1.21 to -0.40; P < 0.001) and motor block (WMD = -1.03 min; 95% CI, -1.51 to -0.56 min; P < 0.001). It delayed the time to first analgesic request (WMD = 216.90 min; 95% CI, 178.90–254.90 min; P < 0.001) and reduced the incidence of shivering (risk ratio [RR] = 0.39; 95% CI, 0.27–0.55; P < 0.001). DEX was associated with increased risk of transient bradycardia (RR = 1.59; 95% CI, 1.07–2.37; P = 0.022) and hypotension (RR = 1.40; 95% CI, 1.04–1.89; P = 0.026) but did not increase the incidence of PONV (RR = 0.87; 95% CI, 0.62–1.24; P = 0.45).

CONCLUSION

Intrathecal dexmedetomidine provides prolonged post-operative analgesia as compared to normal saline.

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