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ORIGINAL RESEARCH

EVALUATION OF INTRATHECALDEXMEDETOMIDINE FOR SPINAL ANAESTHESIA FOR PERIANAL AMBULATORY SURGERIES

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ABSTRACT

Background:Ambulatory anorectal surgery is an appealing approach for patients and physicians due to its increased efficiency and decreased surgical costs. The present study was conducted to evaluate intrathecaldexmedetomidine as adjuvant for spinal anaesthesia for perianal ambulatory surgeries.

Materials & Methods:50 adult patients presenting for perianal surgeries were divided into 2 groups of 25 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 distilled water and group II received intrathecal 0.5% hyperbaric bupivacaine 6 mg (1.2 ml) with 0.5 ml of distilled water. The parameters such as time to regression of sensory blockade, motor blockade, ambulation, time to void, first administration of analgesic wasassessed.

Results: The mean weight in group I was 64.7 kg and in group II was 63.4 kg, height was 156.8 cm in group I and 157.3 cm in group II, ASA grade I was seen in 15 in group I and 16 in group II and grade II was seen in 10 in group I and 9 in group II. The difference was non- significant (P>0.05). The mean duration of surgery was 26.5 minutes in group I and 28.2 minutes in group II. The mean duration of sensory block in group I was 430.6 minutes in group I and in group II was 318.6 minutes, duration of motor block was 324.8 minutes in group I and 230.6 minutes in group II and time to ambulation was 314.2minutes in group I and 216.1 minutes in group II. The difference was significant (P< 0.05). Side effects were shivering seen in 1 in group II, bradycardia 1 in group I, hypotension 1 in each group and Nausea/vomiting 1 in group I and 2 in group II. The difference was significant (P< 0.05).

Conclusion: Intrathecaldexmedetomidine provides prolonged post-operative analgesia.

Key words:dexmedetomidine, post-operative analgesia, perianal ambulatory surgeries

INTRODUCTION

Anorectal disease is one of the most common problems in ambulatory surgery.[1] Surgery is the best therapy for chronic anal fissure, fistula in ano, third- and fourth-degreehemorrhoids. 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.[2]It is estimated that as many as 90% of anorectal procedures may be candidates for ambulatory surgery. Anorectal pathology amenable to ambulatory surgery includes anal fissures, warts, fistulas, hemorrhoids, pilonidal cysts, abscesses, and small neoplasms, among others.[3]

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. 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.[4]

Dexmedetomidine is a selective α2 -adrenergic receptor agonist (α2 -AR agonist). Dexmedetomidine has been found to prolong analgesia when used as an adjuvant to local anaesthetics for subarachnoid block.[5] Analgesic action of α2 -AR agonists are result of depression of the release of presynaptic C-fibre transmitters and by hyperpolarisation of postsynaptic dorsal horn neurons.[6]The present study was conducted to evaluate intrathecaldexmedetomidine as adjuvant for spinal anaesthesia for perianal ambulatory surgeries.

MATERIALS & METHODS

The present study comprised of50 adult patients of American Society of Anaesthesiologists physical status I and II presenting for perianal surgeries of both genders.All agreed to participated in the study with their written consent.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 25 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 distilled water and group II received intrathecal 0.5% hyperbaric bupivacaine 6 mg (1.2 ml) with 0.5 ml of distilled water. The parameters such as time to regression of sensory blockade, motor blockade, ambulation, time to void, first administration of analgesicwereassessed. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Demographic profile of patients

Parameters	Group I	Group II	P value
Weight (Kg)	64.7	63.4	0.92
Height (cm)	156.8	157.3	0.80
ASA (I/II)	15:10	16:9	0.07

Table I shows that mean weight in group I was 64.7 kg and in group II was 63.4 kg, height was 156.8 cm in group I and 157.3 cm in group II, ASA grade I was seen in 15 in group I and

16 in group II and grade II was seen in 10 in group I and 9 in group II. The difference was non- significant (P>0.05).

Table II Assessment of parameters

Parameters	Group I	Group II	P value
Duration of surgery (min)	26.5	28.2	0.90
Duration of sensory block(min)	430.6	318.6	0.01
Duration of motor block(min)	324.8	230.6	0.04
Time to ambulation(min)	314.2	216.1	0.05

Table II, graph I shows that the mean duration of surgery was 26.5 minutes in group I and 28.2 minutes in group II. The mean duration of sensory block in group I was 430.6 minutes in group I and in group II was 318.6 minutes, duration of motor blockwas 324.8 minutes in group I and 230.6 minutes in group II and time to ambulation was 314.2 minutes in group I and 216.1 minutes in group II. The difference was significant (P< 0.05).

Graph IAssessment of parameters

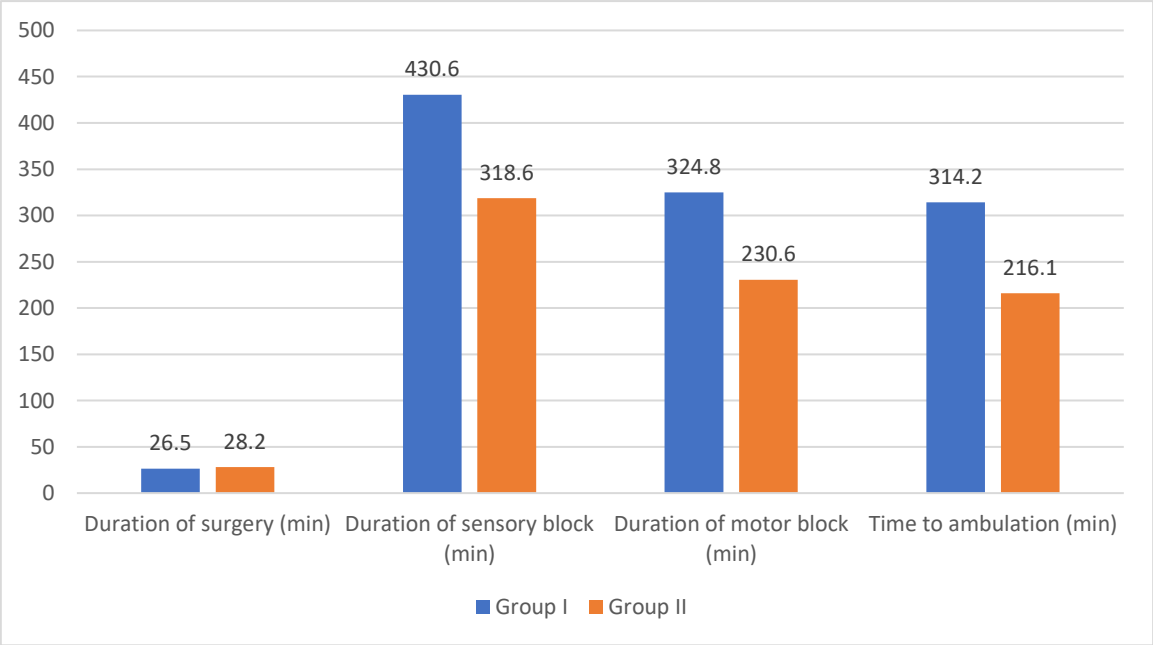

Table III Assessment of side effects in both groups

Side effects	Group I	Group II	P value
Shivering	0	1	0.05
Bradycardia	1	0	
hypotension	1	1	
Nausea/vomiting	1	2	

Table III shows that side effects were shivering seen in 1 in group II, bradycardia 1 in group I, hypotension 1 in each group and Nausea/vomiting 1 in group I and 2 in group II. The difference was significant (P< 0.05).

DISCUSSION

Ambulatory surgical procedures should be performed in a setting with adequate personnel and equipment to provide a safe procedure, anesthesia, and recovery.[7] This includes freestanding ambulatory surgery centers (ASCs) as well as hospital-based outpatient surgery departments which appear to perform equally well.[8] Reasons cited for improved performance of freestanding ASCs may include increased volume for specific procedures, newer facilities, and improved staffing.[9] Hospital-based outpatient surgery departments may have benefits derived from their hospital relationship, including greater resources of equipment and specialists. Dexmedetomidine has been used intrathecally in varying doses ranging from 3 μg to 15 μg. The optimal dose of intrathecaldexmedetomidine has not been established.[10]The present study was conducted to evaluate intrathecaldexmedetomidine as adjuvant for spinal anaesthesia for perianal ambulatory surgeries.

We found that mean weight in group I was 64.7 kg and in group II was 63.4 kg, height was 156.8 cm in group I and 157.3 cm in group II, ASA grade I was seen in 15 in group I and 16 in group II and grade II was seen in 10 in group I and 9 in group II. Taher-Baneh N et al[11] 90 patients who underwent elective calf surgery were randomly divided into three 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 (96 and 169 min) and BD (92 and 166 min) groups than the BS (84 and 157 min) group. Visual Analog Scale was significantly lower in the two groups of BF (1.4) and BD (1.3), within 24 h after surgery, than the BS (1.6) group.

We found that mean duration of surgery was 26.5 minutes in group I and 28.2 minutes in group II. The mean duration of sensory block in group I was 430.6 minutes in group I and in group II was 318.6 minutes, duration of motor block was 324.8 minutes in group I and 230.6 minutes in group II and time to ambulation was 314.2 minutes in group I and 216.1 minutes in group II. We found that side effects were shivering seen in 1 in group II, bradycardia 1 in group I, hypotension 1 in each group and Nausea/vomiting 1 in group I and 2 in group II. Nethra et al[12]assessed effects of addition of 5 μg of dexmedetomidine to 6 mg of hyperbaric bupivacaine on duration of analgesia, sensory and motor block characteristics for perianal ambulatory surgeries. Forty adult patients between 18 and 55 years of age were divided into 2 groups. Group D received intrathecal 0.5% hyperbaric bupivacaine 6 mg (1.2 ml) with injection dexmedetomidine 5 μg in 0.5 ml of distilled water and Group N received intrathecal 0.5% hyperbaric bupivacaine 6 mg (1.2 ml) with 0.5 ml of distilled water. Time for regression of sensory level and time for first administration of analgesic were prolonged in Group D (430.05 ± 89.13 min, 459.8 ± 100.9 min, respectively) in comparison to Group N (301.10 ± 94.86 min, 321.85 ± 95.08 min, respectively). However, the duration of motor blockade, time to ambulation, and time to void were also significantly prolonged in Group D (323.05 ± 54.58 min, 329.55 ± 54.06 min, 422.30 ± 87.59 min) than in Group N (220.10 ± 63.61 min, 221.60 ± 63.84 min, 328.45 ± 113.38 min).

The drawback of this study is small sample size and short follow up.

CONCLUSION

Authors found that intrathecaldexmedetomidine provides prolonged post-operative analgesia.

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