A COMPARATIVE STUDY OF INTRATHECAL DEXMEDETOMIDINE WITH INTRATHECAL MAGNESIUM SULFATE USED AS ADJUVANTS TO BUPIVACAINE

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ABSTRACT

BACKGROUND: This prospective double blind, randomized study was conducted to compare the effect of Dexmedetomidine with magnesium sulfate added to hyperbaric bupivacaine in Spinal Anesthesia. Group A (n=25) consist of patients receiving 3 ml of 0.5% hyperbaric bupivacaine and 0.1 ml (10 mcg) Dexmedetomidine. Group B (n=25) consist of patients receiving 3 ml of 0.5% hyperbaric bupivacaine + 0.1 ml (50 mg) Mg.sulfate.

RESULTS: The mean time of onset of sensory block in group A was 2.28+1.173 and in group B was 7.04+3.23 min with p value <.001. The mean sensory Block time to reach max in group A was 5.60+2.915 and in group B was 14.32+4.67. The mean time of the onset of motor block in Group A was 4.48+1.851 and in group B was 10.76+5.027 that was significantly higher in group B (p<0.001) means motor onset was fast in group A. A mean Duration of motor block was 312.4+116.072 in group A and in group B it was 226.60+84.960. The duration of motor block was found to be significantly longer in Group A compared to Group B (p<0.001). Total duration of analgesia was significantly higher in group A (393.40+116.072) as compare to group B (304.40+80.885). (Pvalue <.001).

Conclusions: In present study we concluded that 10 micrograms of dexmedetomidine as adjuvant to spinal bupivacaine in surgical procedures of long duration has earlier onset and prolonged duration of sensory and motor block without associated significant hemodynamic alteration and provides excellent quality of postoperative analgesia. Intrathecal Mg also prolongs the duration of spinal analgesia, but this is less than intrathecal dexmedetomidine and is with a delayed onset.

KEYWORDS: Dexmedetomidine, Magnesium sulfate, Spinal anaesthesia.
The qualitative data were presented as proportion and percentage and the quantitative data were presented as mean and standard deviation. Student’s t test was used to find out the significance of study parameters on continuous scale (intergroup analysis) in means between two groups and the difference were analyzed by using chi square test. Significance is assessed at 5% level of significance. P value <0.05 was consider significant. Statistical software: The statistical software SPSS 20 and primer were used for the data analysis.

RESULTS

There were no statistically significant differences in the demographic data among all the groups. The mean age of the patients in group A was 41.8 years and in group B was 39.08 years. The mean weight of the patients in group A was 62.4 kg and in group B was 59.64 kg. The duration of surgery was different in both groups but statistically not significant (p>0.05). The mean time of onset of sensory block in group A was 2.28±1.173 min and in group B was 7.04±3.23 min with p value <.001.(Fig:1) The mean sensory Block time to reach max in group A was 5.60±2.915 min and in group B was 14.32±4.67 min.(Fig:2) The mean time of the onset of motor block in Group A was 4.48±1.851 min and in group B was 10.76±5.027 min that was significantly higher in group B.(Pvalue <.001) means motor onset was fast in group A. A mean Duration of motor block was 312.4±116.072 min in group A and in group B it was 226.60±84.960 min.(Fig:4) The duration of motor block was found to be significantly longer in Group A compared to Group B (p<0.001). Total duration of analgesia was significantly higer in group A (393.40±116.072) as compare to group B (304.40±80.885). (Pvalue <.001).(Fig:5) In group A hypotension was in 9 cases, in group B hypotension in 3, although incidence of hypotension was more in group A than group B but difference was not significant as P value was .098. The mean of MBP was not significantly different among the groups initially but at 15 min onwards mean was significantly lower in group A as compared to group B. In group A bradycardia was in 9 cases and in group B was in 2 cases. Although no significant difference was observed according to mean difference in pulse rate ± s.d. (per min.) in both the groups but incidence of bradycardia was significant high in group A as compared to group B.(Pvalue <.05). Incidence of nausea /vomiting was more in group A and shivering was more in group B but the difference was not significant.(P value for nausea was 0.415 and for shivering was 0.346). (Fig:6)

DISCUSSION

It is well recognized that the post operative pain is being under treated and the conventional therapy of providing intermittent analgesics on patient demand is an ineffective method of pain relief. The routine use of regional anaesthesia for lower abdominals surgeries is associated with a short duration of analgesia post operatively which can be extended by i.m and i.v analgesics once patient experiences pain and demands for its relief. This causes intermittent and relatively ineffective analgesia, demands more patient care and provides least patient satisfaction. This problem is circumvented by giving analgesics prior to occurrence of pain. The pre-emptive mixing of analgesics with local anaesthetics for postoperative analgesia. Intrathecal Mg also prolongs the duration of procedures of long duration has earlier onset and prolonged duration of analgesia and motor block without associated significant hemodynamic alteration and provides excellent quality of postoperative analgesia. Intrathecal Mg also prolongs the duration of spinal analgesia, but this is less than intrathecal dexmedetomidine and is with a delayed onset.
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