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Comparative Study on Various Adjuvants used during Spinal Anaesthesia in Infraumbilical Surgeries

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Abstract

This prospective randomized double-blind study was conducted to evaluate the onset and duration of sensory and motor block as well as perioperative analgesia and adverse effects of various adjuvants like dexmedetomidine, magnesium sulphate, fentanyl given during spinal anaesthesia with 0.5% hyperbaric bupivacaine for central neuraxial block. A total of 120 patients were randomly allocated into four groups to receive intrathecally either 15 mg hyperbaric bupivacaine plus 10 µg dexmedetomidine (group A, n =30) or 15 mg hyperbaric bupivacaine plus 50 mg magnesium sulfate (group B, n =30) or 15 mg hyperbaric bupivacaine plus 25 µg fentanyl (group C, n =30) or 15 mg hyperbaric bupivacaine plus 0.1 ml saline (group D, n =30) as control. The onset time to reach peak sensory and motor level, the regression time for sensory and motor block, hemodynamic changes and side-effects were noted. The time of onset to reach T10 dermatome level and to reach peak sensory level as well as the onset time to reach modified Bromage 3 motor block were significantly different in all the four groups. The onset time to reach peak sensory and motor level was shorter in group A as compared with the control group C, and it was significantly prolonged in group B. It was also found that patients in group A had significant longer sensory and motor block times when compared to patients in group B, which was greater than in the fentanyl group C and control group D. In this study it was found that onset of anaesthesia was rapid and of prolonged duration in the dexmedetomidine group (A). However, in the magnesium sulfate group (B), although onset of block was delayed, the duration was significantly prolonged as compared with the fentanyl group (C) and control group (D), but to a lesser degree than in the dexmedetomidine group (A). All the groups were similar with respect to hemodynamic variables and there were no significant side-effects in either of the groups.