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Lidocaine plus Dexmedetomidine or Nitroglycerine for intravenous regional anesthesia for hand and forearm trauma surgery

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Background: Intravenous regional anesthesia (IVRA) is an effective procedure for various short trauma surgical interventions on the upper limbs. It provides favorable patient recovery profile with shorter postoperative recovery time and less hemodynamic derangement.

Aim: To investigate the quality of analgesia and hemodynamics when dexmedetomidine or nitroglycerine (NTG) added to lidocaine for Intravenous Regional Anesthesia (IVRA) for traumatic hand and forearm surgery.

Method: Sixty ASA I and II patients undergoing hand and forearm surgery after trauma under, were divided into three groups (20 patients each). Group Dexmedetomidine received IVRA 40 ml lidocaine 0.5% plus 1 µg/kg dexmedetomidine. Group Nitroglycerine received IVRA 40 ml lidocaine 0.5% plus 200 µg NTG. Group Control received IVRA 40 ml lidocaine 0.5%. Onset and recovery of sensory and motor block, quality of analgesia, time to tourniquet pain, time to first postoperative analgesic request, the total intra-operative and postoperative analgesic consumption and adverse effects were recorded.

Results: Sensory and motor block onset times were significantly shorter in group Nitroglycerine compared to group Dexmedetomidine and group Control. Sensory and motor block recovery times were significantly prolonged in group Dexmedetomidine and group Nitroglycerine compared to group Control. Sensory and motor block recovery times were significantly prolonged in group Dexmedetomidine compared to group Nitroglycerine ($P < 0.05$). Time to tourniquet pain was higher in group Control compared to both Dexmedetomidine and Nitroglycerine groups. Postoperative VAS and analgesic consumption intra and postoperative were statistically lower in group Dexmedetomidine and group Nitroglycerine compared to group Control ($P < 0.05$). These variables were significantly lower in group Dexmedetomidine in comparison to group Nitroglycerine ($P < 0.05$).

Conclusion: NTG 200 µg added to lidocaine for IVRA shorten sensory and motor block onset times. Dexmedetomidine 1 µg/kg improves the quality of anesthesia and improves intra-operative tourniquet pain and postoperative pain with less intra-operative and postoperative analgesic consumption or hemodynamic instability.

Biography

Ossama H Salman is presently working as an Assistant Professor in the Department of Anesthesia, ICU and Pain Management in South Valley University, Egypt. During his Fellowship at the Department of Anesthesia and ICU, Nagoya University, Japan, he has completed his PhD degree on the contribution of neuropeptide Y to edema occurrence, in neurogenic and hydrostatic pulmonary edema (rat models). He has also investigated role of nitric oxide in the rat brain. He is the Head of the Pain Management Unit. He also works as Visiting Pain Consultant at Ministry of Electricity Central Hospital in Cairo.

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