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An Evaluation of the effect of addition of Clonidine to Lignocaine for Intravenous Regional Anaesthesia of the Upper Limb

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Introduction

Intravenous regional anesthesia (IVRA)was first introduced by Sir August Bier in 1908, hence also called as Bier's block and was made popular by Sir Holmes in 1963.[1]This technique makes use of a vascular bed to bring local anesthetic in the proximity of nerve endings.[2]

The main advantages of this technique are its simplicity, effectiveness, reliability and its feasibility for day care and emergency surgery circumventing the problems of full stomach.

Lignocaine-based intravenous regional anesthesia is commonly utilised for superficial short duration upper extremity surgeries. However it posed problems of poor muscle relaxation, immediate post operative pain,[3]risk of local anesthetic toxicity and limitation of procedure time by tourniquet pain.[4,5] To overcome this a number of adjuncts including tramadol [6], neostigmine[7], nonsteroidal anti-inflammatory drugs (NSAIDS), [8] clonidine[9] and sodium bicarbonate have been used along with lignocaine in IVRA to improve onset time, intraoperative analgesia or to extend postoperative analgesia. Tramadol when used with lignocaine in IVRA caused skin rash distal to the tourniquet, implying histamine release.[10] Ketorolac added to IVRA with lignocaine, resulted in improved perioperative analgesia.[8,11] Although they observed no localized sequelae in these studies, other investigators have noted hematomas, which they attributed to ketorolac under similar conditions.[12]

Anesthesiology literature has generally supported the use of clonidine for improving postoperative analgesia in IVRA,[9,13,14,15,16] as well as for a variety of other peripheral nerve blocks.[14]However, the withdrawal of sentinel work by Reuben et al[9,15,16] has significantly diminished the strength of evidence supporting clonidine in IVRA.Clonidine may also cause undesirable side effects, such as sedation, hypotension and bradycardia.[17]

Our goal in this study was to determine the optimal dose of clonidine as an adjunct to standard lidocaine-based IVRA, for the purpose of providing intraoperative and postoperative analgesia, while minimizing side effects and adverse reactions.

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