Title :

Comparison of lidocaine–dexmedetomidine and lidocaine–saline on the characteristics of the modified forearm bier block: A clinical trial

Karim Nasseri1 , Kamal Ghaderi1, Khaled Rahmani2, Nasser Rahmanpanah3, Shoaleh Shami4, Farhad Zahedi5, Taher Naseh Baneh1

Author information :

1. Department of Anesthesiology, School of Medicine, Kurdistan University of Medical Sciences, Sanandaj, Iran.

2. Liver and Digestive Research Center, Research Institute for Health Development, Kurdistan University of Medical Sciences, Sanandaj, Iran.

3. Department of Surgery, School of Medicine, Kurdistan University of Medical Sciences, Sanandaj, Iran

4. Department of Medical Surgical Nursing, Faculty of Nursing and Midwifery, Kurdistan University of Medical Sciences, Sanandaj, Iran

5. Indiana University School of Medicine, Research Fellow, Indiana, USA

Abstract

Background and Aims:

Forearm Modified Bier Block (FMBB) reduces local anesthetic systemic toxicity risks compared to the traditional method. This study designed and implemented to compare the effects of lidocaine–dexmedetomidine (LD) and lidocaine–saline (LS) on the characteristics of the MFBB in distal forearm and hand surgery.

Material and Methods:

In this randomized double-blind trial, which conducted after obtaining institutional ethical committee approval, 60 patients enrolled and randomly divided into two groups. In both groups, the analgesic base of the block was 20 mL lidocaine 0.5% that was supplemented by 1 μg/kg dexmedetomidine in the LD group or 1 mL of 0.9% saline in the LS group. Patients evaluated for the onset and duration of sensory block, time of the first request for postoperative analgesic, and analgesic request frequency during the first 24 h after surgery.

Results:

Sensory block onset in the LD group (7.1 ± 1.4 min) compared to the LS group (8.4 ± 1.4) was faster ($P = 0.008$). Duration of the sensory block in LD group (49.7 ± 7.2 min) was longer than LS group (33.3 ± 2.6) ($P < 0.001$). Compared to LS group, time of the first request for postoperative analgesic in LD group was later ($P = 0.6$), and had lesser analgesic requests during the first 24 h after surgery ($P < 0.001$).

Conclusion:

Based on our study's finding, adding dexmedetomidine to lidocaine in the MFBB increases the duration of sensory block.

Keywords:

Analgesics, anesthesia, dexmedetomidine, nerve block, pain