Comparison of 2 Types of Local Anesthetic Techniques in the Reduction of Distal Radius Fracture: A Prospective Cohort Study

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INTRODUCTION:
The treatment of distal radius fractures may require manipulation of the fracture assisted by finger pull, causing pain both at the fracture site and at the fingers. The usual type of anesthesia used is an hematoma block that does not anesthetize the fingers. No studies were found in the literature comparing hematoma block with hematoma block associated to a median nerve block. The purpose of this study was to compare pain level during distal radius fracture reduction with two types of anesthetic technique.
METHODS:
We conducted an IRB-approved prospective cohort study with two groups, hematoma block (HB) and hematoma with associated median nerve block (MHB). Characteristic variables of the patients were collected: age, sex, Elixhauser comorbidity index, area of greatest pain, and need for surgery. The main variable for the analysis was pain, measured in centimeters using the Visual Analogical Scale. It was measured prior to the injection (VAS1), as well as during fracture reduction (VAS2) and 30 minutes after the injection (VAS3) in both groups. Differences between the two groups were evaluated using repeated measures ANOVA.
RESULTS:
The study included a total of 140 fractures (70 anesthetized with HB and 70 with MHB), 78% were women. There were no significant differences in the variables age, sex, Elixhauser index, and need for surgery between both groups. In the HB group, the VAS means were VAS1 5.23 cm (SD 2.31), VAS2 5.80 cm (SD 2.52), VAS3 1.89 cm (SD 1.94), while In the MHB group VAS1 5.13 cm (SD 2.36), VAS2 3.15 cm (SD 1.70), VAS3 1.09 cm (SD 1.38). Area of greatest pain during fracture reduction in the HB group was finger traction in 78% cases ($p<0.05$), while in MHB group was the manipulation of the fracture site in 71% cases ($p<0.05$). The repeated measures ANOVA evidenced statistically significant differences in VAS scores between both groups and also for the interaction between group and time ($p<0.05$).
DISCUSSION AND CONCLUSION: The study demonstrates that the use of hematoma with associated median nerve block, decreases pain perception in patients with distal radius fracture that needs closed reduction prior to immobilization, when compared to hematoma block alone. These findings support the use of hematoma with associated median nerve block as a valuable technique to implement in emergency rooms.