Improvement in Postoperative Pain Control and Length of Stay with Peripheral Nerve Block Prior to Distal Radius Repair

***Pierce Johnson, MD**; Thomas J. Matiski; Joshua Hustedt, MD; Evan Scott Lederman, MD*
Banner University of Arizona Phoenix, Phoenix, AZ, United States

Purpose: Distal radius fractures are common injuries that frequently require surgical fixation. Improved postoperative pain control has the potential to not only improve patient satisfaction but also decrease length of stay (LOS) and thus lower health-care costs. Few studies have looked at the benefits of postoperative pain control with regional nerve blocks prior to distal radius repair. The purpose of this study is to investigate the differences in postoperative pain control and LOS in patients who receive peripheral nerve block versus those who do not prior to distal radius repair.

Methods: We performed a nonrandomized study in which 82 patients undergoing distal radius open reduction and internal fixation (ORIF) from March through August of 2016 were placed into 1 of 2 groups, peripheral nerve block versus general anesthesia only. Two patients were excluded from the study, 1 in each group. The first was excluded from the non-block group due to hospital transfer. The second patient was excluded from the nerve block group due to the patient's request to rest in phase 2. This left a total of 80 participating patients, 37 in the no-block group and 43 in the block group. The decision whether or not to place a nerve block was based solely on surgeon preference. Nerve blocks were performed using either a combination of 0.25% bupivacaine and 1% lidocaine or 0.25% bupivacaine only. We measured postoperative LOS in phase I, total LOS and patient- reported pain level at discharge. Pain levels were reported on a 0-10 numeric scale. The 2 groups were compared using standard t-test analysis.

Results: Patients in the nerve block group showed a statistically significant decrease in postoperative pain at discharge as well as decreased phase I and total LOS. Postoperative pain scores in the block group showed a mean of 0.932 ± 1.981 versus no-block group 3.93 ± 2.780 (mean difference of 3.0024, $P < 0.00001$). Phase I LOS showed a mean time of 37.27 ± 12.79 minutes in the block group versus 71.21 ± 33.12 minutes in the no- block group (mean difference of 33.938, $P < 0.0001$). Total LOS differed between the 2 groups as well with a mean LOS of 72.12 ± 23.45 minutes in the nerve block group versus 109.18 ± 59.48 minutes in the no-block group (mean difference of 37.068, $P < 0.0001$).

Conclusion: The group of patients who received a peripheral nerve block prior to distal radius repair showed significantly lower pain scores at discharge as well as shorter length of stay. Based on these results we recommend the use of peripheral nerve block prior to distal radius repair for improved postoperative pain and decreased LOS.