## Single Shot Nerve Block versus Peripheral Nerve Catheter for Distal Radius Fractures: A Pilot Study of a Safe Technique

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## INTRODUCTION:

Regional anesthesia is effective for the treatment of upper extremity fractures. Perineural peripheral nerve catheters (PNC) are being utilized at an increasing rate by orthopedic surgeons due to their prolonged duration of action compared to single-shot peripheral nerve blocks (sPNB). The aim of this study was to determine the safety profile and efficacy of PNC in open reduction and internal fixation of distal radius fractures in adults. METHODS:

In this retrospective study, 99 patients that underwent distal radius fracture fixation by a single hand surgeon between January 1, 2021 and November 15, 2023 were identified. Patients received either sPNB or PNC. Opioid consumption, pain scores, and adverse outcomes were compared post-operatively. RESULTS:

58 patients (58.6%) received sPNB and 41 patients (41.4%) had a PNC placed at the time of surgery. There was no difference in sex, BMI, or ASA scores. Patients treated with sPNB were significantly older (62.9 v 53.6, p = 0.008). There was no difference in mean time spent in the post-anesthesia care unit (sPNB 1.99 hours v PNC 1.70 hours, p = 0.507). Incidence of post-operative pain-related healthcare visits was not statistically significant between groups (sPNB 0.103 v PNC 0.024, p = 0.133). 29.82% of patients treated with sPNB versus 41.46% treated with PNC were taking narcotics at 2 weeks follow-up (p = 0.237). Median pain scores at 2 weeks follow up were2.0 (IQR = 5) and 3.0 (IQR = 5) in sPNB and PNC, respectively (p = 0.442). No patients developed compartment syndrome.

## DISCUSSION AND CONCLUSION:

Indwelling PNC's have a safety profile comparable to that of sPNB in operative fixation of distal radius fractures in adults. Future studies are necessary to investigate the ability of PNC's to provide prolonged pain relief and reduce opioid consumption in the acute post-operative period in distal radius fracture fixation.