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“The Effect of the Serratus Anterior Plane Block on Pain and Respiratory Function”

This project sets out to determine if early, ultrasound guided serratus anterior plane block placement improves incentive spirometry volume and decreases pain in adult patients with three or more traumatic antero-lateral rib fractures who present to the Emergency Department at a Level 1 Trauma center. The project will be a prospective, randomized day study comparing patients who received ultrasound guided serratus anterior plane blocks with those who received standard pharmacologic analgesic therapy (consisting mainly of APAP, NSAIDs, opioids, systemic lidocaine). Primary outcome variables measured will be changes in incentive spirometry volume and changes in the visual analogue scale for pain. Secondary outcomes will include average daily opioid requirement while in the hospital, length of ICU stay, length of hospital stay, need for intubation, diagnosed pneumonia, and procedure complications (new pneumothorax, new skin infection). This study will be the first prospective, randomized study evaluating the efficacy of the ultrasound guided serratus anterior plane block in improving respiratory status in the setting of multiple, traumatic rib fractures as measured by incentive spirometry – the standard method of measuring respiratory status in current literature as well as within our institution. This study will also add to a small body of literature – consisting almost exclusively of case reports – evaluating the efficacy of the ultrasound guided serratus anterior block in controlling pain caused by traumatic rib fractures. We hope that the results of this study will help guide future use of point of care ultrasound guided serratus anterior blocks by Emergency Medicine physicians in the management of pain and decreased respiratory volumes in the setting of multiple, acute, traumatic rib fractures.