

# Chest Wall Injury Society

## Title of Presentation

SIMULTANEOUS CLAVICLE AND RIB FRACTURES FIXATION IN PATIENTS WITH SEVERE CHEST WALL INJURIES IS ASSOCIATED WITH BETTER OUTCOMES

## Background

Recent studies demonstrate improved early functional outcomes after operative fixation of clavicle fractures via open reduction and internal fixation (Clavicle-ORIF). This strategy may be particularly advantageous when patients are eligible for early surgical stabilization of rib fractures (SSRF). We aimed to compare outcomes between patients undergoing simultaneous Clavicle-ORIF with SSRF (Clavicle-ORIF+SSRF) and those undergoing SSRF alone (SSRF-Alone) for severe chest wall injury.

## Methods

A prospective, 2016–2025 IRB–approved database of adults ( $\geq 18$  years) undergoing SSRF at a Chest Wall Injury Collaborative center was queried for patients with displaced clavicle fractures. Patients undergoing Clavicle-ORIF after SSRF were excluded. Outcomes included daily morphine milligram equivalents (MME), mechanical ventilation (MV), intensive care unit (ICU) days, and hospital length of stay (HLOS).

## Results

Of 60 patients with displaced clavicle fractures undergoing SSRF, 15% underwent simultaneous Clavicle-ORIF+SSRF. Another 13% had Clavicle-ORIF performed later in their admission. Operative time was longer for Clavicle-ORIF+SSRF (245 [211–297] vs. 166 [109–219] min,  $p=0.01$ ). The groups were similar in age (52 vs. 57 years) and injury severity (NISS 22 vs. 27; RibScore 4 vs. 3), with no significant differences. Mortality was low (2 deaths, both in SSRF-Alone). Clavicle-ORIF+SSRF was associated with significantly fewer ICU days (2 [1–3] vs. 5 [3–11],  $p=0.005$ ), and less MV requirement (0% vs. 42%,  $p=0.02$ ); HLOS was shorter but did not reach significance (6 [4–11] vs. 11 [6–16] days,  $p=0.10$ ). Median and maximum daily MME were non-significantly lower for Clavicle-ORIF+SSRF (38 [30–59] vs. 62 [30–83],  $p=0.25$ ; and 67 [45–155] vs. 112 [61–140],  $p=0.61$ , respectively) (Figure 1).

## Conclusion

In patients with combined rib and clavicle fractures undergoing early SSRF, simultaneous clavicle fixation is associated with improved outcomes and may represent an opportunity to optimize management of severe chest wall injury.

**(OPTIONAL) Additional materials may be uploaded if desired. File name must include the last name of Author 1.**



Schlauch\_Figure1\_clavicle\_rib\_605.docx