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“Pre-injury positive toxicology trauma patient cohort analysis undergoing surgical stabilization of rib fractures”

Background: It is commonly known that alcohol and drug abuse predispose trauma patients to clinical management challenges and worse clinical outcomes. The aim of our study was to assess the effects of pre-injury tox-positivity on outcomes from surgical stabilization of rib fracture (SSRF) on trauma patients. Our hypothesis is that patients with a pre-injury positive toxicology status will have more complications and worse clinical outcomes.

Methods: This is a retrospective study using the trauma registry at our Level 1 trauma center examining patients who underwent SSRF between Jan 2016 and Jan 2021. Of the 87 patients who underwent SSRF, we included 49 who had alcohol and drug screening performed in our study cohort. Patients were grouped according to EtOH and drug positivity. Demographic and clinical data were collected and analyzed using Fisher’s exact test to compare groups.

Results: The majority of patients who underwent SSRF tested positive for alcohol and/or drugs on admission. The young adult (18-34 y/o) group tested significantly higher ($p= 0.0479$) for drug usage compared to mature adult (35-59 y/o) and elderly (≥ 60). There were no significant differences in patient characteristics between alcohol, drug, or polysubstance abuse in our cohort. Nor were there differences between the groups relating to need for chest tube insertion, tracheostomies, ventilation, or hospital length of stay. There were three deaths, all tested positive for drugs only, all died of complications of their injuries unrelated to their thoracic trauma or SSRF.

Conclusions: The pre-injury positive toxicology status is a prevalent issue on trauma centers. Treating different populations of trauma patients gives space for SSRF procedure to be considered as an applicable option. Patients admitted with severe rib fractures can benefit from receiving this line of treatment. Assessing narcotic equivalent use in the hospital stay and longstanding outcomes such as time to return to work and long-term pain maybe the way to go as a future projection.