



CWIS Chest Wall Injury Summit 2023

Oral Presentation Abstract Submission

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Title of Presentation Clinical outcome in patients with and without Chest Wall Injury after Cardiopulmonary Resuscitation

Background

Cardiopulmonary resuscitation (CPR), although lifesaving, may cause chest wall injury (CWI) due to the physical force exerted on the thorax. The impact of CWI on clinical outcome in this patient group is largely unstudied. The primary aim of this study was to investigate the incidence of CPR-related CWI and the secondary aim to study the difference in morbidity and mortality between patients with and without CWI.

Methods

This is a retrospective study of adult patients who were admitted to Sahlgrenska University Hospital due to cardiac arrest (CA) during 2012–2020. Patients were identified in the Swedish CPR Registry and those undergoing CT of the thorax within 2 weeks after CPR were included. Patients with traumatic CA, chest wall surgery prior or after CA were excluded. Demographic data, type and length of CPR, type of CWI, length of stay (LOS) on Mechanical Ventilator (MV), in Intensive Care Unit (ICU) and in Hospital (H), and mortality were studied.

Results

Out of 1715 CA patients, 244 met the criteria for inclusion. The majority (73.8%) of the patients suffered from CWI. Rib fractures were more common than sternum fractures (68.4% vs. 25.8%) and 18% suffered from flail chest. Patients with CWI were older (66.6 ± 14.8 vs. 55.4 ± 17.1 , $p < 0.001$). No difference was seen in MV-LOS (3 (0-43) vs. 3 (0-22), $p = 0.394$), ICU-LOS (3 (0-48) vs. 3 (0-24), $p = 0.896$) and H-LOS (5 (0-85) vs. 7.5 (1-53), $p = 0.089$) in patients with or without CWI. Mortality within 30 days was higher with CWI (69.5% vs. 51.6%, $p = 0.011$).

Conclusion

Chest wall injuries are common after CPR and 18% of patients had a flail segment on CT. Elderly patients have an increased risk of CWI and a higher mortality is seen in patients with CWI.