WG 8 (Aerospace Medicine)

Assessing the Evolution of Pre-Hospital Combat Casualty Care: A Comparative Study of Two Conflicts a Decade Apart

Danny Epstein.
Israel Defense Forces Medical Corps Rambam Health Care Center, Technion- The Ruth and Bruce Rappaport Faculty of Medicine, The Gertner Institute for Epidemiology and Health Policy Research, Sheba Medical Center.

Background:
Combat casualty care has advanced significantly with the implementation of evidence-based protocols designed to lower combat-related mortality. Over the last decade, two major urban conflicts in southern Israel have challenged the evolving military trauma system.
Purpose:
This study aimed to assess differences in prehospital care and compare the outcomes of aeromedical evacuated casualties from the 2014 and 2023 conflicts.
Methods:
A retrospective cohort study analyzed records from the Military Airborne Combat Evacuation Unit (MACEU) and the Israeli National Trauma Registry. Patients aeromedically evacuated between 07.17.14–08.16.14 and 10.27.23–03.17.24 were included. Ground- evacuated casualties were excluded. Demographics, prehospital interventions, and clinical outcomes were compared.
Results:
In 2014, 251 casualties were evacuated alive, compared to 940 in 2023. Both conflicts involved young males injured by explosions, with similar injury distributions. Median injury-to-hospital time decreased from 65min (IQR 47-94) to 60min (IQR 47-180) (d=0.5, p<0.001). The proportion of severely (ISS≥16) and critically injured (ISS≥25) increased from 18.3% to 25.2% (OR 1.5, p=0.03) and 7.6% to 12.8% (OR 1.79, p=0.03), respectively. Advanced airway interventions and thoracostomies declined from 11.6% to 6.0% (OR 0.48, p<0.001) and 7.0% to 2.1% (OR 0.28, p<0.001). Prehospital blood transfusion use rose from 6.6% to 16.4% (OR 2.78, p<0.001). In-hospital mortality remained stable (2.7% vs. 2.5%, OR 1.12, p=0.99), with non-significant reductions among severely.