



Died of Wounds in Modern Combat

CPT Inbal Dym, MD

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At the moment of truth,
IDF MEDICAL CORPS.

Disclosures

- CPT Dr. Inbal Dym MD, has no conflict to report.
- This study was performed as part of the Israel Defense Forces Trauma and Combat Medicine Branch effort to improve the quality of combat casualty care and received no external funding or support.



Should we study those whom we did not manage to save?

- Improving combat casualty care depends on a thorough understanding of the factors contributing to in-hospital mortality following battlefield injuries →DOW
- What should we study?



Injury Mechanisms
& Severity



Tactical Demands &
Constraints



Allocated Care
Resources



Prehospital
Treatments



Evacuation Route
& Time



Clinical Evaluation
at Arrival

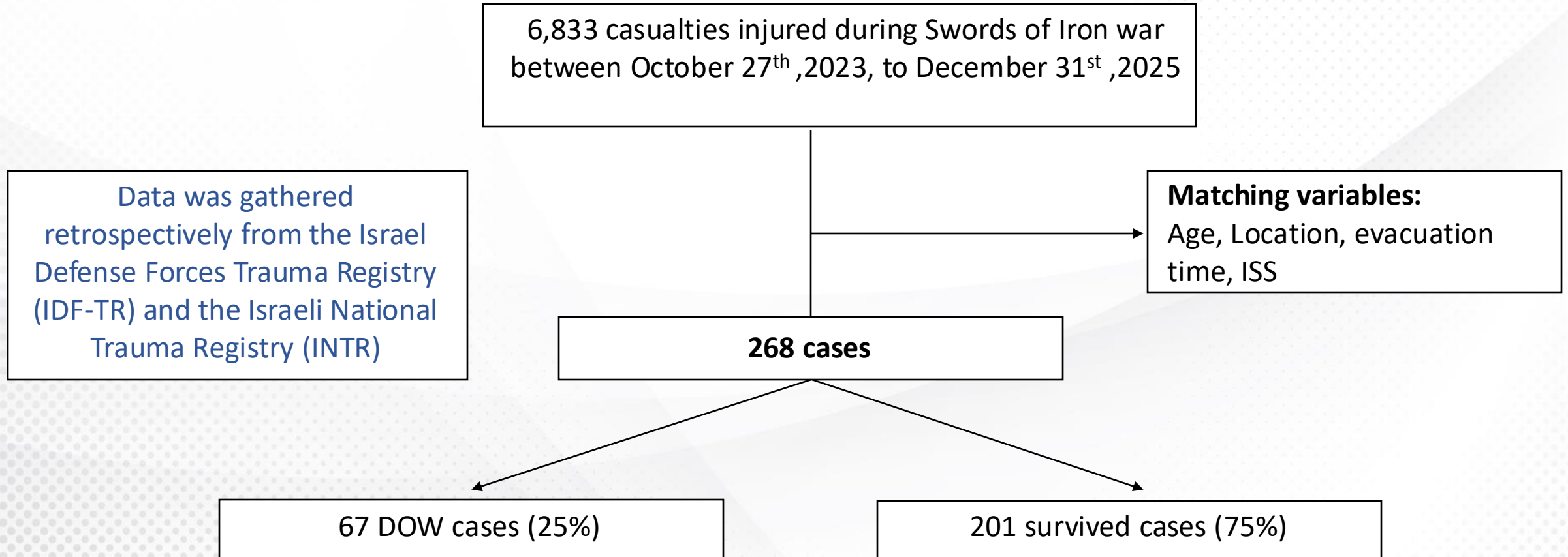


Study Objectives

- To review and analyze DOW cases and compare them with patients who sustained similar battlefield injuries severity but survived
- To mark potential modifiable factors and opportunities to improve clinical outcomes

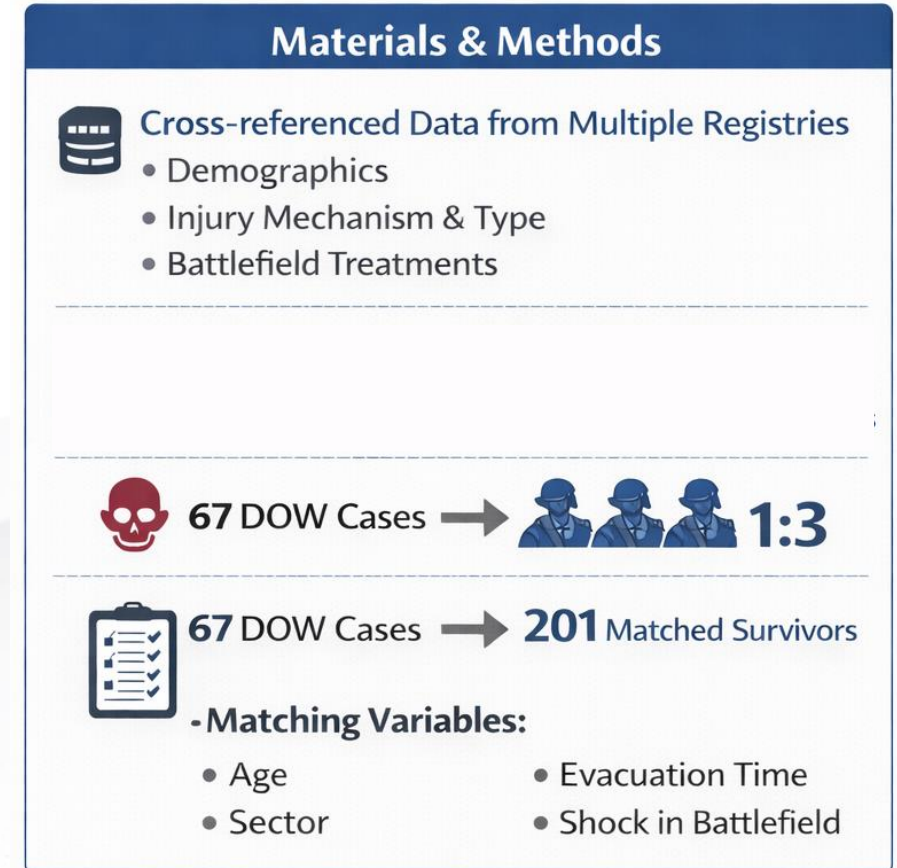


Study Population

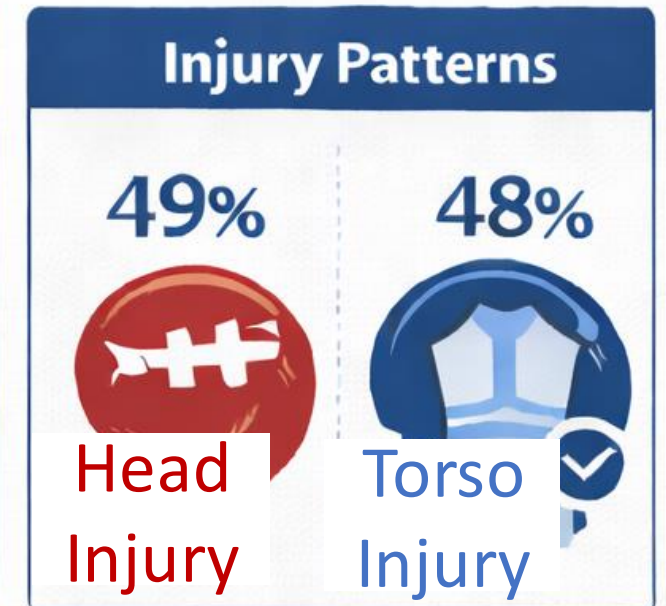
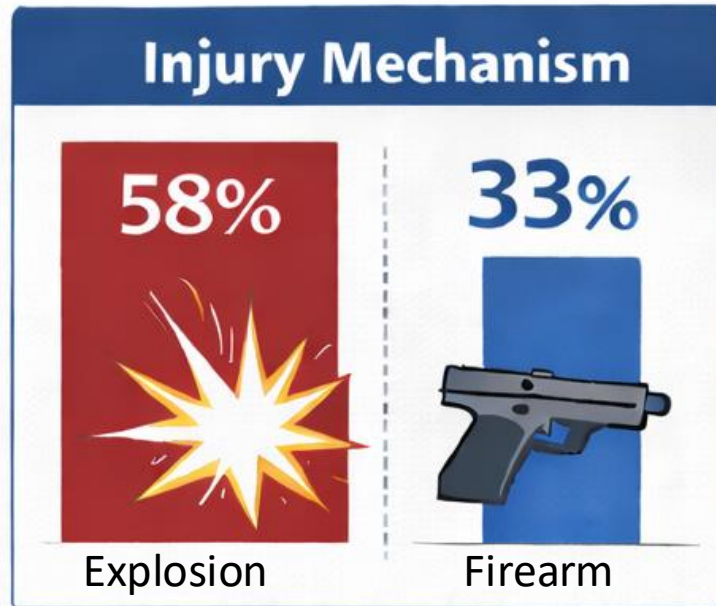


Statistical analysis

- DOW cases were adjudicated separately and defined as patients who sustained battlefield injuries and subsequently died during hospitalization as **a direct result of those injuries**
- **Propensity score matching** was performed in a 1:3 ratio between DOW cases and patients with similar Injury Severity Score (ISS), who survived to discharge
- **Multivariable logistic regression** was used to evaluate the associations between injury mechanisms, injury types, and prehospital treatments and the occurrence of DOW



Results – DOW Baseline Characteristics



Results – Baseline characteristics After Matching

	DOW cases (n=67)	Matched survivors (n=201)
Male, n (%)	66 (99)	199 (99)
Casualty Age, Median (IQR)	22 (20-28)	23 (20-28)
Location		
Gaza strip, n (%)	41 (61)	147 (73)
Lebanon, n (%)	17 (25)	44 (22)
Other, n (%)	9 (13)	10 (5)
Event Generator		
Explosion, n (%)	39 (58)	118 (59)
Firearm, n (%)	22 (33)	62 (31)
Other, n (%)	6 (9)	21 (10)
Shock, n (%)	58 (87)	110 (55)
Aerial evacuation, n (%)	53 (79)	186 (93)
ISS 16-24, n (%)	3 (4.5)	30 (15)
ISS 25 or above, n (%)	64 (95.5)	171 (85)
Head Injury, n (%)	33 (49)	39 (19)
Torso injury, n(%)	32 (48)	101 (50)
RDCR protocol, n(%)	40 (60)	116 (58)



Results – Multivariable logistic regression

Matching Performed on: Age, Sector, Evacuation Time, Shock in Battlefield, ISS

Tourniquet Use

0.80 (95% CI.0.67–0.97)



Enhance
Hemorrhage Control

Head Injury

2.56 (95% CI.1.65-3.47)



Early Head Trauma
Management



Limitations

- Retrospective case control study
- In hospital interventions where not included in the analysis

To be continued...

- In hospital “survivable death” ?



Conclusions

- Most DOW cases followed penetrating trauma, most of them due to explosive mechanisms.
- The main two mechanisms of injury in the DOW population were head injury and torso injuries.
- In matched analyses, DOW casualties had strong association to head injury and to the lack of tourniquet application.





Thank you!



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