



US DEPARTMENT OF DEFENSE

BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

Vehicles

Casualty Status and Injury Profile of Mounted Service Members from a Select Group of Combat Events

Armored vehicles were used extensively in both Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) by the US Military. Military vehicles, including armored vehicles, are often the target of buried explosive devices, roadside bombs, and direct-fire attacks. On some occasions, these events can cause catastrophic damage to a targeted vehicle. Because of the constant push for increased preventive equipment and measures related to occupant safety, it is important to understand how or if there is a relationship between a vehicle with catastrophic damage and the casualty status and injury profile of the occupants. Naval Health Research Center (NHRC) and Joint Trauma Analysis and Prevention of Injury in Combat (JTAPIC) partners, using the JTAPIC database, examined a group of vehicles with catastrophic damage along with the casualty status of the occupants and their Abbreviated Injury Scale (AIS) coded injuries. Casualties, including wounded in action (WIA) and killed in action (KIA), were described with frequencies and proportions. For WIA, severity of injury was described using frequency and proportions for each of the nine abbreviated injury scale (AIS) body regions and crew positions. Using the Barell matrix, injury types were also examined by crew position. Lastly, WIA injury severity and KIA frequency were examined by event. A total of 25 like-vehicle events meeting the criteria for having a catastrophic level of damage were selected for study. Sixty percent (15/25) of the events had at least one WIA or KIA, 48 percent (12/25) of these events had at least one WIA, and 32 percent (8/25) of the events had only one WIA. Only 28 percent (7/25) of the events had at least one KIA, with 12 percent (3/25) having only one KIA. There were no WIAs with injuries exceeding an AIS 3 in severity, and 24 percent of the events had no WIAs with injuries exceeding an AIS 2 in severity. Drivers received the highest proportion of total coded injuries at 37 percent (67/181), but the highest proportion of WIAs were in a gunner/vehicle commander (VC) position (33 percent; 9/27). Lower extremity injuries accounted for the highest proportion of injuries experienced by WIAs and accounted for the highest proportion of coded injuries overall. Fractures and superficial/contusion injuries were the dominant injury types, with drivers having the highest proportion of fractures, and gunner/VC positions having the highest proportion of superficial/contusion-type injuries. Only four events accounted for 63 percent (114/181) of the coded injuries and 76 percent (13/17) had AIS 3 injuries. One event accounted for 38 percent of all KIAs (5/13) and had no WIAs. In summary, the catastrophic damage to a vehicle does not necessarily directly relate to the outcomes experienced by the crew. In no case did a WIA injury severity exceed an AIS of 3, and 32 percent of the events had only WIAs. Vehicles with catastrophic damage retain the capacity to protect those in the crew compartment.

