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Injury severity and causes of death from Operation Iraqi Freedom and Operation Enduring Freedom: 2003-2004 versus 2006.

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Abstract

BACKGROUND: The opinion that injuries sustained in Iraq and Afghanistan have increased in severity is widely held by clinicians who have deployed multiple times. To continuously improve combat casualty care, the Department of Defense has enacted numerous evidence-based policies and clinical practice guidelines. We hypothesized that the severity of wounds has increased over time. Furthermore, we examined cause of **death** looking for opportunities of improvement for research and training.

METHODS: Autopsies of the earliest combat deaths from Iraq and Afghanistan and the latest deaths of **2006** were analyzed to assess changes in injury severity and **causes of death**. Fatalities were classified as nonsurvivable (NS) or potentially survivable (PS). PS deaths were then reviewed in depth to analyze mechanism and cause.

RESULTS: There were 486 cases from March 2003 to April 2004 (group 1) and 496 from June **2006** to December **2006** (group 2) that met inclusion criteria. Of the PS fatalities (group 1: 93 and group 2: 139), the injury severity score was lower in the first group (27 +/- 14 vs. 37 +/- 16, $p < 0.001$), and had a lower number of abbreviated injury scores ≥ 4 (1.1 +/- 0.79 vs. 1.5 +/- 0.83 per person, $p < 0.001$). The main cause of **death** in the PS fatalities was truncal hemorrhage (51% vs. 49%, $p = NS$). Deaths per month between groups doubled (35 vs. 71), whereas the case fatality rates between the two time periods were equivalent (11.0 vs. 9.8, $p = NS$).

DISCUSSION: In the time periods of the war studied, deaths per month has doubled, with increases in both injury severity and number of wounds per casualty. Truncal hemorrhage is the leading cause of potentially survivable deaths. Arguably, the success of the medical improvements during this war has served to maintain the lowest case fatality rate on record.

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