

Children with severe head injuries are casualties of wars in Iraq and Afghanistan

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During the wars in Iraq and Afghanistan, U.S. combat support hospitals treated at least 650 children with severe, combat-related head injuries, according to a special article in the July issue of *Neurosurgery*, official journal of the Congress of Neurological Surgeons.

"Given the challenging environment and limited available resources, coalition forces were able to provide quality, timely, and life-saving care to many [children](#)" with severe head injuries, write Dr. Paul Klimo, Jr., of Semmes-Murphy Neurologic & Spine Institute in Memphis, Tenn., and colleagues. They believe that resources—personnel and equipment—to care for inevitable neurologic and non-neurologic pediatric injuries that accompany future military conflicts should be factored early in logistical planning.

Severe pediatric head injuries in Iraq and Afghanistan

The researchers used the Joint Theater Trauma Registry (JTTR) to identify children with severe head injuries who were treated at U.S. combat support hospitals in Iraq or Afghanistan between 2004 and 2012. The study focused on isolated head injuries, the vast majority of which were combat-related. The study presents epidemiological features and outcomes of the injuries, including factors associated with in-hospital mortality.

The JTTR review identified 647 children with severe head injuries sustained in Operation Iraqi Freedom or Operation Enduring Freedom (Afghanistan). The children's median age was eight years. About three-fourths of patients were boys. Klimo and colleagues write, "Boys...tend to congregate around soldiers, are combatants themselves, or are more likely to be involved in accidental trauma."

Over 90 percent of the children had open or penetrating head injuries. The most common causes of injury were improvised explosive devices (IEDs), 38 percent of children; and blast injuries, 25 percent.

Just over half of children underwent surgery (craniotomy or craniectomy). Approximately one-third underwent placement of intracranial pressure monitoring to assess potentially damaging increases in pressure within the skull. Time spent in the military hospital varied, but was generally short, as it was a priority to transition these injured civilians to local hospitals as soon as medically possible in order to keep resources available for injured coalition soldiers.

About one-fourth of the children died of their injuries. Not surprisingly, the severity of head injury, based on the Glasgow Coma Scale Score, was a significant predictor of survival. The authors, however, did find a rather unexpected survival benefit for boys, particularly among children injured in Operating Enduring Freedom.

Because the study focused on combat injuries, it included relatively few children with closed (non-penetrating) head injuries. However, children with these injuries tended to have better survival.

"Children have and will always be unfortunate victims of any military conflict, with OIF and OEF being no exception," Klimo and co-authors write. The high numbers and high rates of death among children with severe combat-related head injuries are generally consistent with

previous studies of wartime casualties in children. Consistent with other studies that looked at pediatric injuries during these two GWOT (Global War on Terrorism) conflicts, IEDs and other blast devices were the most common mechanisms of damage.

Within its limitations, the researchers hope their study will provide new insights into the nature of devastating combat-related head injuries in children. Understanding the characteristics of these injuries and the factors associated with survival and death may aid planning to manage pediatric [head injuries](#) and improve their outcomes. "Assets to comprehensively care for the pediatric patient should be established early in future conflicts," Klimo and colleagues conclude.

More information: "Severe Pediatric Head Injury During the Iraq and Afghanistan Conflicts." [DOI: 10.1227/NEU.0000000000000743](https://doi.org/10.1227/NEU.0000000000000743)

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