Kandahar

There are limited data concerning the long-term functional outcomes of patients with penetrating brain injury. Reports from civilian cohorts are small because of the high reported mortality rates (as high as 90%). Data from military populations suggest a better prognosis for penetrating brain injury, but previous reports are hampered by analyses that exclude the point of injury.

The purpose of a study was to provide a description of the long-term functional outcomes of those who sustain a combat-related penetrating brain injury (from the initial point of injury to 24 months afterward).

This study is a retrospective review of cases of penetrating brain injury in patients who presented to the Role 3 Multinational Medical Unit at Kandahar Airfield, Afghanistan, from January 2010 to March 2013. The primary outcome of interest was Glasgow Outcome Scale (GOS) score at 6, 12, and 24 months from date of injury.

A total of 908 cases required neurosurgical consultation during the study period, and 80 of these cases involved US service members with penetrating brain injury. The mean admission Glasgow Coma Scale (GCS) score was 8.5 (SD 5.56), and the mean admission Injury Severity Score (ISS) was 26.6 (SD 10.2). The GOS score for the cohort trended toward improvement at each time point (3.6 at 6 months, 3.96 at 24 months, $p > 0.05$). In subgroup analysis, admission GCS score ≤ 5, gunshot wound as the injury mechanism, admission ISS ≥ 26, and brain herniation on admission CT head were all associated with worse GOS scores at all time points. Excluding those who died, functional improvement occurred regardless of admission GCS score ($p < 0.05$). The overall mortality rate for the cohort was 21%.

Good functional outcomes were achieved in this population of severe penetrating brain injury in those who survived their initial resuscitation. The mortality rate was lower than observed in civilian cohorts [1].

The Kandahar Airfield neurosurgery service managed 908 consults between January 2010 and March 2013. Eighty of these were US active duty members with PBI, 13 of whom were excluded from analysis because they presented with frankly nonsurvivable CNS injury or they died during initial resuscitation. This is a retrospective analysis of the remaining 67 patients. RESULTS Thirty-two patients received early VTC and 35 did not. Mean time to the first dose was 24 hours. Fifty-two patients had blast-related PBI and 15 had gunshot wounds (GSWs) to the head. The incidence of worsened intracranial hemorrhage was 16% after early VTC and 17% when it was not given, with the relative risk approaching 1 (RR = 0.91). The incidence of DVT or PE was 12% after early VTC and 17% when it was not given (RR = 0.73), though this difference was not statistically significant. CONCLUSIONS Early VTC was safe with regard to the progression of intracranial hemorrhage in this cohort of combat-related PBI patients. Data in this study suggest that this intervention may have been effective for the prevention of DVT or PE but not statistically significantly so. More research is needed to clarify the safety and efficacy of this practice [2].

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15 patients comprising Afghanistan National Security Forces and local nationals presented to the medical facility for treatment of unstable lumbar spine fractures. The patients underwent surgery for either anterior corpectomy and instrumented fusion (n = 5) or posterior instrumented fusion (n = 10).

Because of periodic scarcity of spinal instrumentation sets, orthopedic extremity instrumentation sets were used (Synthes Large Fragment LCP Instrument and Implant Set) for spinal stabilization.

Immediate postoperative standing and sitting plain radiographs demonstrated no evidence of fracture progression or immediate hardware failure. One patient was seen in follow-up at 4 weeks and demonstrated construct stability on follow-up radiographs.

In the combat environment with sparse resources, unstable spine fractures may potentially be treated using instrumentation not specifically designed for spinal implantation. This is an off-label use, and the authors do not recommend the use of these techniques as standard treatment in most medical environments [3].

From February 2, 2006, to October 15, 2009, the Canadian Forces Health Services served as the lead nation for the R3MMU. We retrospectively reviewed the electronic and the actual operative database during this timeframe to assess surgical workload, types of surgical procedures performed, and the involved anatomic regions of the surgical procedures.

During this timeframe, there were 6,735 operative procedures performed on 4,434 patients. The majority of our patients were Afghan nationals, with Afghan civilians representing 34.8%, Afghan National Security Forces 31.6%, and North Atlantic Treaty Organization forces 25.3%. The number of operative procedures by specialty were 3,329 in orthopedic surgery (49.4%), 2,053 general surgery (30.5%), 930 oral maxillofacial surgery (13.8%), and 272 neurosurgery (6%). The most frequently operated on body region was the soft tissue, followed by the extremities and then the abdomen. Thoracic operations were very infrequent.

The operative data were slightly different from historical controls. Hopefully, this data will help with planning for future deployments of field hospitals on military missions [4].

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