

Meta-Analysis of the Effect of Intracranial Infections on Morbidity and Mortality of Civilian Craniocerebral Gunshot Injuries

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Introduction

Civilian gunshot wounds to the head (GSWH) are a significant cause of traumatic brain injury-related mortality in the US. Intracranial infections are feared delayed complications in civilian GSWH and the benefit of prophylactic antibiotics has not been thoroughly studied.

Methods

We conducted a meta-analysis of retrospective studies. A database search was conducted in PubMed, EMBASE, Scopus, Web of Science and Cochrane Library for articles after 2000 for intracranial infections (meningitis, cerebritis, ventriculitis and cerebral abscess) after civilian GSWH. We compared the intracranial infection rate in patients who received antibiotic prophylaxis with those who did not. We also compared the mortality of postoperative patients developing intracranial infections with the rest, and their morbidity, as evidenced by their Glasgow Outcome Scale (GOS), and grouped as favorable (GOS 4-5) or unfavorable (GOS 2-3).

Conclusions

Prophylactic antibiotics are routinely given to GSWH patients to prevent infections. This meta-analysis of retrospective studies suggests that 1. prophylactic antibiotics did not decrease the risk of intracranial infections; 2. the presence of intracranial infections in a GSWH setting did not affect mortality and 3. patients developing intracranial infections had worse neurological outcomes.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of intracranial infections after craniocerebral gunshot wounds in civilians; 2) Discuss, in small groups the possible effects of antibiotic prophylaxis in these cases; 3) Identify an effective management plan for GSWH, to decrease infection-related mortality.

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