

Introduction

Previous studies have demonstrated high in-hospital mortality rates in elderly patients with acute subdural hematoma. Post-discharge mortality information is limited. We present both short and long-term mortality data and review the impact of associated comorbidities.

Methods

We retrospectively identified patients who had presented with isolated acute subdural hematomas after trauma during a 6 year period using our Data Registry. The National Social Security Death Index was then cross-referenced to obtain 7 year post-discharge mortality information on those patients, and Kaplan-Meier plots were utilized to analyze differences in survival rates. United States life tables were used to match demographics for peer-controlled actuarial comparisons. Univariate, Fisher's test, and logistic regression analyses were used to assess the effects of multiple variables on survival.

Results

A total of 455 patients were included, of which 55.2% were considered geriatric (age =65). Fisher's analysis demonstrated a significantly elevated in-hospital mortality rate in the geriatric group ($p=0.0097$). Analysis demonstrated a stepwise decrease in late survival, and overall survival, with increasing age ($p<0.001$ for both). The differences in late survival were most pronounced in the first year ($p=.0231$). Furthermore, as compared to peer-matched controls, our injured geriatric patients had a significantly lower survival rate for the first 4.5 years after discharge. Surgical decompression

Conclusions

Elderly patients who sustain acute subdural hematoma are subject to poor survival rates both in-hospital and long after discharge. Surgical evacuation is clearly not a panacea, and the poor outcomes are compounded by the ubiquitous employment of anti-platelet/anti-coagulant use. It would seem that once the ball is set into motion by the sustaining of such an injury, many of the elderly are locked into a course of progressive if not precipitous decline to death. Prevention thus seems to be of singular importance. Seeing that falls are the principal cause of these injuries, a large-scale focus on falls in the elderly and their prevention seems warranted.

References

1. Bajsarowicz P, Prakash I, Lamoureux J, et al. Nonsurgical acute traumatic subdural hematoma: what is the risk? *J Neurosurg.* 2015;123(5):1176-1183. doi:10.3171/2014.10.JNS141728.
2. El-Fiki M. Acute traumatic subdural hematoma outcome in patients older than 65 years. *World Neurosurg.* 2012;78(3-4):228-230. doi:10.1016/j.wneu.2012.02.049.
3. Tausky P, Hidalgo ET, Landolt H, Fandino J. Age and Salvageability: Analysis of Outcome of Patients Older than 65 Years Undergoing Craniotomy for Acute Traumatic Subdural Hematoma. *World Neurosurg.* 2012;78(3-4):306-311. doi:10.1016/j.wneu.2011.10.030.
4. Fell DA, Fitzgerald S, Moiel RH, et al. Acute subdural hematomas. Review of 144 cases. *J Neurosurg* 1975; 42 (1): 37-425
5. Gennarelli TA, Spielman GM, Langfitt TW, et al. Influence of the type of intracranial lesion on outcome from severe head injury. *J Neurosurg* 1982; 56 (1): 26-32
6. Hatashita S, Koga N, Hosaka Y, et al. Acute subdural hematoma: Severity of injury, surgical intervention, and mortality. *Neurol Med Chir (Tokyo)* 1993; 33 (1): 13-18
7. Kotwica Z, Brzezinski J. Acute subdural haematoma in adults: An analysis of outcome in comatose patients. *Acta Neurochir (Wien)* 1993; 121 (3-4): 95-99
8. Servadei F, Nasi MT, Cremonini AM, et al. Importance of a reliable admission Glasgow Coma Scale score for determining the need for evacuation of posttraumatic subdural hematomas: A prospective study of 65 patients. *J Trauma.* 1998 May;44(5):868-73.
9. Leung GK, Ng GK, Ho W, Hung KN, Yuen WK: Impact of a multidisciplinary trauma team on the outcome of acute subdural haematoma. *Injury* 2011 Apr 5. [Epub ahead of print].
10. Bullock MR, Chesnut R, Ghajar J, et al. Surgical management of acute subdural hematomas. *Neurosurgery.* 2006;58(3 Suppl):S16-24; discussion Si-iv.

Learning Objectives

To understand the impact of subdural hematoma in the elderly population.

to understand that subdural hematoma affects a higher mortality rate in the elderly long after hospital discharge.

To understand that fall prevention may be the most efficacious method of mitigating the impact of this dreadful injury.

Limitations:

Several limitations are intrinsic to retrospective studies such as this, including the reliance on ICD-9 code accuracy and exclusion of mixed, yet aSDH-predominant, injuries. While ICD-9 codes give us the ability to track large numbers of variables from large numbers of patients, they are prone to documentation error. In addition, while trying to isolate aSDH from other TBI-related injuries, we certainly lost data which would have reflected the SDH-specific pathology and contributed towards this purpose. Finally, we were unable to explore the clinical variables in greater detail at this time, including relationships regarding mortality and injury severity (GCS score), AT reversal status and time to surgery for example, but will likely attempt to explore these avenues going forward.

