

Necessity of Repeat CT Imaging in Isolated Mild Traumatic Subarachnoid Hemorrhage

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Introduction

The standard of care for isolated mild traumatic subarachnoid hemorrhage (itSAH) involves serial head CT examinations at dedicated time intervals to monitor for hemorrhagic progression and neurological status. Recent evidence questions such an aggressive protocol. This study aimed to assess the necessity of repeat head CT imaging in managing itSAH.

Methods

All patients who presented to a single academic institution with mild traumatic brain injury were evaluated. Patients > 17 years of age who presented with isolated, mild, blunt tSAH (GCS 13-15) were included. Patients with significant polytrauma, as well as patients with coagulopathy or taking anticoagulant medications, were excluded. Patient demographics (age, gender, coagulopathy), imaging results (CT progression – defined as a binary variable based on re-reading/comments by neurosurgical personnel), and outcomes (final GCS score, discharge status, interventions, and 30-day readmission) were all recorded. Additionally, any follow-up appointments within one year of presentation were noted.

Results

Of 190 cases identified for inclusion, 94 (49%) met all study criteria (age 59.0 ± 18.5, 57 Male). Nine (9.6%) patients presented with repeat CT progression, with none reporting 30-day readmission or adverse event on follow-up. Comparison of cases with and without CT progression found no significant differences in interventions, readmission (p = 0.5668), final GCS score (p = 0.2339), or adverse event on follow-up (p = 1.000). Of three total readmissions, none were related to head trauma or demonstrated CT progression. Five patients demonstrated clinical deterioration (final GCS <14), and none showed progression on CT or were readmitted. Only one case resulted in death due to cardiac arrest related to pulmonary embolism.

Conclusions

Our findings suggest that serial CT imaging has little efficacy in changing mild isolated tSAH management or outcomes. Additionally, it is poorly correlated with clinical progression. A less aggressive management protocol may be more appropriate for managing this patient population.

Learning Objectives

By the end of this session, participants should be able to 1) Assess the clinical utility of serial CT in managing mild isolated tSAH 2) Discuss alternate monitoring protocols for mild isolated tSAH 3) Consider these findings for future research in other types of mild traumatic brain injury

References

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