Traumatic subarachnoid hemorrhage case series

Cooper et al. reviewed patients with mild TBI specifically with isolated SAH to determine progression of the pathology and need for neurosurgical involvement. All patients with SAH secondary to mild TBI (Glasgow Coma Score (GCS) of 13-15) who presented over a 5-year period (January 2010 to December 2014) to a level I trauma center were identified from the trauma registry. Demographic data, initial CT findings, neurosurgical consultation, follow-up CT findings, Injury Severity Score (ISS), admission GCS and length of stay (LOS) were all obtained from the patient's charts. Patients with other traumatic brain lesions on the initial CT were excluded. There were 299 patients (male, 48.5%), mean age 60.9 and mean ISS 8. Average time between the first and second CT was 11.3 hours. In all, 267 (89.2%) patients had either no change or an improvement/resolution on follow-up CT scan. Only 26 patients (8.7%) had either worsening or new findings on CT. Eight patients did not have a second scan completed (2.6%). All patients had neurosurgical consultation. Patients with mild TBI with isolated SAH generally have low morbidity, short LOS and negligible mortality. Less than 10% of this population had worsening of their head injury on repeat CT scanning. Given the low acuity of these patients with SAH and tendency towards resolution without intervention, acute care surgeons can manage this specific group of patients with TBI without routine neurosurgical consultation. Repeat CT scanning continues to have utility as it may identify new lesions, deterioration or need for further management [1)].

In 661 patients with isolated tSAH. Only four patients (0.61%) underwent any sort of aggressive neurosurgical, medical, or endovascular intervention, regardless of GCS score. Most tSAH patients without additional systemic injury were discharged home (68%), including 53% of patients with a GCS score of 3-8. However, older patients were more likely to be discharged to a rehabilitation facility ($p<0.01$). There were six (1.7%) in-hospital deaths, and five patients of these patients were older than 80 years old.

Isolated tSAH, regardless of admission GCS score, is a less severe intracranial injury that is highly unlikely to require aggressive operative, medical, or endovascular intervention, and is unlikely to be associated with major neurologic morbidity or mortality, except perhaps in elderly patients. Based upon our findings, we argue that impaired consciousness in the setting of isolated tSAH should strongly compel a consideration of non-traumatic factors in the etiology of the altered neurological status [2)].

A prospective, randomized, double-blind, placebo-controlled study of nimodipine used to treat traumatic subarachnoid hemorrhage (tSAH) was conducted in 21 German neurosurgical centers between January 1994 and April 1995. One hundred twenty-three patients with tSAH appearing on initial computerized tomography (CT) scanning were entered into the study. Requirements for inclusion included age between 16 and 70 and admission into the study within 12 hours after head injury, regardless of the patient's level of consciousness. Eligible patients received either a sequential course of intravenous and oral nimodipine or placebo treatment for 3 weeks. Patients were closely monitored using clinical neurology, computerized tomography, laboratory, and transcranial Doppler ultrasound parameters. Patients treated with nimodipine had a significantly less unfavorable outcome

(death, vegetative survival, or severe disability) at 6 months than placebo-treated patients (25% vs. 46%, p = 0.02). The relative reduction in unfavorable outcome in the nimodipine-treated group was even higher (55%, p = 0.002) when only patients who complied with the protocol were considered [3].

1)

Cooper SW, Bethea KB, Skrobut TJ, Gerardo R, Herzing K, Torres-Reveron J, Ekeh AP. Management of traumatic subarachnoid hemorrhage by the trauma service: is repeat CT scanning and routine neurosurgical consultation necessary? Trauma Surg Acute Care Open. 2019 Nov 17;4(1):e000313. doi: 10.1136/tsaco-2019-000313. PMID: 31799413; PMCID: PMC6861109.

2)

Lee JJ, Segar DJ, Asaad WF. Comprehensive Assessment of Isolated Traumatic Subarachnoid Hemorrhage. J Neurotrauma. 2014 Feb 6. [Epub ahead of print] PubMed PMID: 24224706.

3)

Harders A, Kakarieka A, Braakman R. Traumatic subarachnoid hemorrhage and its treatment with nimodipine. German tSAH Study Group. J Neurosurg. 1996 Jul;85(1):82-9. PubMed PMID: 8683286.