RESULTS: A total of 47 patients in the RQM group and 35 in the RA group. The average surface area for the RA and RQM incisions were 116.9cm² and 109.2cm² (P = .017), respectively. Average defect: skull ratio for RA incision was 0.813 compared to 0.784 for the RQM group (P = .019). Of those who survived beyond one-week, the absolute risk for wound and surgical site complications were 7.14% and 17.78% for RA and RQM group, respectively.

CONCLUSION: We present a safe and effective alternative incision to the traditional RQM incision used for DHC. The RA incision provides exposure for a larger hemicranium defect and also may lead to less wound complications by preserving major arterial blood supply to the scalp.

440 Propensity-Matched Case-Control Analysis of Operative versus Bedside Drainage of Chronic SDH: Clinical and Economic Outcomes
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INTRODUCTION: Chronic subdural hematomas cause significant morbidity and cost the healthcare system $5 billion in 2007. There are multiple treatment options, from bedside drainage to burr holes/craniotomies in the operating room. Current prospective studies either have small sample size or homogenous patient populations that limit generalizability. The purpose of this study was to look at the outcomes of bedside SEPS placement vs operative burr hole drainage to acquire preliminary data to support a randomized prospective trial.

METHODS: All Cases between 2011 and 2019 were identified through CPT codes for burr hole drainage and SEPS procedure notes. Patients were excluded if they had prior neurosurgical history, mass lesions or bilateral hematomas. 105 patients underwent burr hole drainage and 55 patients underwent SEPS placement. Demographic data, medical comorbidities and antiplatelet/anticoagulant use were collected. Samples were propensity matched. Non-inferiority tests compared the outcomes of the two procedures. Cost data for length of stay and OR utilization was collected through billing staff of the appropriate departments.

RESULTS: Following propensity matching, patients with multiple medical comorbidities (including hypertension, antiplatelet use) were twice as likely to undergo bedside SEPS drainage as opposed to operative drainage (P = .0002). Non-inferiority tests while not reaching statistical significance, demonstrates trends suggesting that SEPS drains were not worse in reoperation-rate (12 vs 14 P = .12), post-operative seizure or functional outcome. SEPS drain placement trended towards a faster time to procedure (3 hours; P = .07). Despite a longer hospital stay (1 day; P = .01), SEPS drain hospital stays costed about $5000, leading to approximately $779,000 in savings over 8 years once accounting for re-operations.

CONCLUSION: In conclusion, while the non-inferiority tests did not reach statistical significance, likely due to insufficient sample size, they trended towards demonstrating non-inferiority between SEPS drains and burr holes. However, SEPS drain patients typically had a longer length of stay, which could be related to their increased comorbidities or due to the lack of manufacturer specifications on how long to leave the drain in post-procedure. While the insufficient power limit the conclusions that can be drawn from the study, these data suggest equipoise which provides support for conducting a randomized prospective control trial.

441 Prone-Position Ventilation in Patients with Neurologic Conditions: A Systematic Review of the Literature and Suggested Protocol
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INTRODUCTION: Recommendations regarding ventilation strategies in the setting of COVID-19, which may culminate in a clinical picture similar to ARDS, have not yet been well established. Prone positioning has shown benefit as an adjunct supportive measure for patients who develop ARDS. However, studies assessing the benefit of prone positioning have excluded patients with reduced intracranial compliance resulting in a unique predicament, whereby patients with concomitant neurological diagnoses and ARDS have no defined treatment algorithm or recommendations for management.

METHODS: A systematic review of the literature, performed in accordance with the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) 2009 guidelines, yielded 10 articles for analysis. Utilizing consensus from these articles, in combination with review of multi-institutional proning protocols for patients with non-neurologic conditions, a proning protocol for patients with intracranial pathology and concomitant ARDS was developed.

RESULTS: Among the 10 studies included in final analysis, there was consensus that prone positioning should be considered when there is evidence of acute lung injury or ARDS in patients with neurologic injury. Patients may be prone in a specialty bed or manually on a standard bed with the assistance of seven to nine personnel, in the manner described herein. Special consideration for patients requiring frequent neurologic exams and patients at risk of cardiac arrest or seizure are discussed.

CONCLUSION: While elevations in ICP and reductions in CPP do occur during proning, they may not occur to a degree that would warrant exclusion of prone ventilation as a treatment modality for patients with ARDS and concomitant neurological diagnoses. In cases where ICP, CPP, and PbtO2 can be monitored, prone-position ventilation should be considered a safe and viable therapy.

442 Diffuse Axonal Injury and Cerebral Contusions on MRI Are Associated with Decreased Functional Outcome in CT-negative TBI: A TRACK-TBI Pilot Study