

There was no strong evidence indicating improved outcomes. However, the large amount of heterogeneity amongst studies has limited our ability to make a strong conclusion except that future research should focus on a uniform study design and patient focused outcomes.  
**Keywords:** hypotension, point of care ultrasound, shock

#### MP06

##### Impact of anticoagulation on mortality and resource utilization among critically ill patients with major bleeding in the emergency department

G. Mok, MD, S. Fernando, MD, MSc, L. Castellucci, MD, MSc, D. Dowlatshahi, MD, PhD, B. Rochweg, MD, MSc, D. McIsaac, MD, MPH, M. Carrier, MD, MSc, P. Wells, MD, MSc, S. Bagshaw, MD, MSc, P. Tanuseputro, MD, MHSc, K. Kyeremanteng, MD, MHA, University of Ottawa, Department of Emergency Medicine, Ottawa, ON

**Introduction:** Patients with major bleeding (e.g. gastrointestinal bleeding, and intracranial hemorrhage [ICH]) are commonly encountered in the Emergency Department (ED). A growing number of patients are on either oral or parenteral anticoagulation (AC), but the impact of AC on outcomes of patients with major bleeding is unknown. With regards to oral anticoagulation (OAC), we particularly sought to analyze differences between patients on Warfarin or Direct Oral Anticoagulants (DOACs). **Methods:** We analyzed a prospectively collected registry (2011-2016) of patients who presented to the ED with major bleeding at two academic hospitals. "Major bleeding" was defined by the International Society on Thrombosis and Haemostasis criteria. The primary outcome, in-hospital mortality, was analyzed using a multivariable logistic regression model. Secondary outcomes included discharge to long-term care among survivors, total hospital length of stay (LOS) among survivors, and total hospital costs. **Results:** 1,477 patients with major bleeding were included. AC use was found among 215 total patients (14.6%). Among OAC patients (n = 181), 141 (77.9%) had used Warfarin, and 40 (22.1%) had used a DOAC. 484 patients (32.8%) died in-hospital. AC use was associated with higher in-hospital mortality (adjusted odds ratio [OR]: 1.50 [1.17-1.93]). Among survivors to discharge, AC use was associated with higher discharge to long-term care (adjusted OR: 1.73 [1.18-2.57]), prolonged median LOS (19 days vs. 16 days, P = 0.03), and higher mean costs (\$69,273 vs. \$58,156, P = 0.02). With regards to OAC, a higher proportion of ICH was seen among patients on Warfarin (39.0% vs. 32.5%), as compared to DOACs. No difference in mortality was seen between DOACs and Warfarin (adjusted OR: 0.84 [0.40-1.72]). Patients with major bleeding on Warfarin had longer median LOS (11 days vs. 6 days, P = 0.03) and higher total costs (\$51,524 vs. \$35,176, P < 0.01) than patients on DOACs. **Conclusion:** AC use was associated with higher mortality among ED patients with major bleeding. Among survivors, AC use was associated with increased LOS, costs, and discharge to long-term care. Among OAC patients, no difference in mortality was found. Warfarin was associated with prolonged LOS and costs, likely secondary to higher incidence of ICH, as compared to DOACs.  
**Keywords:** anticoagulation, critical care, hemorrhage

#### MP07

##### Diagnosis of elevated intracranial pressure in critically ill adults – a systematic review and meta-analysis

S. Fernando, MD, MSc, A. Tran, MD, W. Cheng, PhD, B. Rochweg, MD, MSc, M. Taljaard, PhD, K. Kyeremanteng, MD, MHA,

S. English, MD, MSc, M. Sekhon, MD, D. Griesdale, MD, MPH, D. Dowlatshahi, MD, PhD, M. Czosnyka, PhD, V. McCredie, MBChB, PhD, E. Wijdicks, MD, PhD, S. Almenawer, MD, K. Inaba, MD, V. Rajajee, MBBS, J. Perry, MD, MSc, University of Ottawa, Department of Emergency Medicine, Ottawa, ON

**Introduction:** Elevated intracranial pressure (ICP) is a devastating complication of brain injury, such as traumatic brain injury, subarachnoid hemorrhage, intracerebral hemorrhage, ischemic stroke, and other conditions. Delay to diagnosis and treatment are associated with increased morbidity and mortality. For Emergency Department (ED) physicians, invasive ICP measurement is typically not available. We sought to summarize and compare the accuracy of physical examination, imaging, and ultrasonography of the optic nerve sheath diameter (ONSD) for diagnosis of elevated ICP. **Methods:** We searched Medline, EMBASE and 4 other databases from inception through August 2018. We included only English studies (randomized controlled trials, cohort and case-control studies). Gold standard was ICP  $\geq 20$  mmHg on invasive ICP monitoring. Two reviewers independently screened studies and extracted data. We assessed risk of bias using Quality Assessment of Diagnostic Accuracy Studies 2 criteria. Hierarchical Summary Receiver Operating Characteristic model generated summary diagnostic accuracy estimates. **Results:** We included 37 studies (n = 4,768, kappa = 0.96). Of exam signs, pooled sensitivity and specificity for increased ICP were: mydriasis (28.2% [95% CI: 16.0-44.8], 85.9.0% [95% CI: 74.9-92.5]), motor posturing (54.3% [95% CI: 36.6-71.0], 63.6% [95% CI: 46.5-77.8]) and Glasgow Coma Scale (GCS)  $\leq 8$  (75.8% [95% CI: 62.4-85.5], 39.9% [95% CI: 26.9-54.5]). Computed tomography findings: compression of basal cisterns had 85.9% [95% CI: 58.0-96.4] sensitivity and 61.0% [95% CI: 29.1-85.6] specificity; any midline shift had 80.9% [95% CI: 64.3-90.9] sensitivity and 42.7% [95% CI: 24.0-63.7] specificity; midline shift  $\geq 1$ cm had 20.7% [95% CI: 13.0-31.3] sensitivity and 89.2% [95% CI: 77.5-95.2] specificity. Finally, pooled area under the ROC curve describing accuracy for ONSD sonography for ICP was 0.94 (95% CI: 0.91-0.96). **Conclusion:** The absence of any one physical exam feature (e.g. mydriasis, posturing, or decreased GCS) is not sufficient to rule-out elevated ICP. Significant midline shift is highly suggestive of elevated ICP, but absence of shift does not rule it out. ONSD sonography may be useful in diagnosing elevated ICP. High suspicion of elevated ICP may necessitate treatment and transfer to a centre capable of invasive ICP monitoring.

**Keywords:** intracranial hemorrhage, intracranial pressure, traumatic brain injury

#### MP08

##### The frequency of emergency departments visits for patients with end-of-life conditions: a call for action

S. Kirkland, MSc, M. Kruhlak, BSc, M. Garrido Clua, MSc, C. Villa-Roel, MD, PhD, S. Couperthwaite, BSc, A. Brisebois, MD, A. Elwi, PhD, B. O'Neil, BScN, S. Duggan, MD, B. Rowe, MD, MSc, for the EOL Study Team, University of Alberta, Edmonton, AB

**Introduction:** An increasing number of patients with end-stage diseases present to emergency departments (EDs) for physical, spiritual, psychological and social care. The objective of this study was to identify patients with end-stage diseases with palliative care (PC) needs and document their frequency of ED visits. **Methods:** This prospective cohort study was conducted in two Canadian EDs. Using a