

P.086**A randomized trial of a simple intervention to improve neurosurgery rotation experience for senior medical students**

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Background: High volumes, ill patients, and steep learning curves can make neurosurgical rotations challenging for medical students. Furthermore, existing rotations often lack neurosurgery-specific orientation materials and level-appropriate pre-reading resources reducing the educational yield of short rotations. This is compounded by the lack of mandatory neurosurgical rotations across medical schools. We hypothesized that a “Neurosurgery Clerkship Manual” covering key orientation, knowledge, and practical topics would enhance educational experiences and generate sustained knowledge retention. **Methods:** Students rotating through neurosurgery at three hospitals were randomized to receive (intervention) or not receive (control) free access to the manual before their rotation. Participants completed surveys before, immediately after, and 4-weeks after the rotation assessing expectations, experiences, and clinically-relevant knowledge. **Results:** 61 participants were randomized between 2014 and 2017 with 43(70.5%) completing all three questionnaires. Baseline demographics, characteristics, and experiences were not significantly different. Those receiving the manual reported increased rotation enjoyment ($p=0.02$), decreased stress levels ($p=0.05$), and a greater feeling of being “part of the team” ($p=0.01$). There were also reductions in feeling like they were “not learning” ($p=0.01$). Finally, those receiving the manual demonstrated significantly better knowledge after the rotation (91.6% vs 80.9%; $p=0.04$) which was sustained at 4-weeks post-rotation (89.2% vs 79.0%; $p=0.05$). **Conclusions:** A simple and inexpensive clerkship manual can improve the neurosurgery rotation experience and knowledge retention for medical students.

NEUROTRAUMA**P.087****“Reported Brain Injury” Time trends within two Canadian health surveys over two decades**

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Background: An “epidemic” of concussions has been widely reported. We explored the annual incidence of reported concussion or other brain injury, over 20 years within Canada in order to explore the magnitude of this reported epidemic. **Methods:** Two Canadian nationally representative health surveys have serially collected injury data associated with disability. The National Population Health Survey (NPHS) (1994-9) collected data on “concussion”, and the Canadian Community Health Survey (CCHS) (2000-current) has collected data on “concussion or other brain injury”. Data on respondents 12 years and older reporting concussion with or without other

brain injury within the past year were examined in order to produce serial incidence data. **Results:** Nationally representative data were available biennially from 1994/95 through 2013/14 with the exception of 2007/08 and 2011/12. The incidence of reported concussions, or concussions and other brain injury has been stable until 2005/06 when the reported annual incidence started an upward slope to levels 250% higher ($p<0.001$) without any apparent stabilization by 2013/14, when approximately 1 in 200 Canadians 12 years and older report concussion or other brain injury as their most significant injury associated with disability in the previous 12 months. **Conclusions:** There is currently a pandemic of reported brain injury in Canada.

P.088**Antithrombotic agents and traumatic brain injury in the elderly population: hemorrhage patterns and outcomes**

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Background: In the elderly population, use of antithrombotic therapy (AT), antiplatelets (AP – aspirin, clopidogrel) and/or anticoagulants (AC – warfarin, DoAC – Dabigatran, Rivaroxaban, Apixaban), to prevent thrombo-embolic events must be carefully weighed against the risk of intracranial hemorrhage (ICH) with trauma. We hypothesize that for all patients 65yo+ with head trauma, those on AT will be more likely to sustain a traumatic brain injury, ICH, and poorer outcomes. **Methods:** Data was collected from all head trauma patients 65yo+ presenting to our tertiary trauma center (level 1) over a 24-month period; age, gender, injury mechanism, medications, International Normalized Ratio, reversal therapy, Glasgow Coma Scale (GCS), ICH, surgery, Extended Glasgow Outcome Scale score (GOSE) and mortality. **Results:** 1365 patients were identified; 724 on AT (413 AP, 151 AC, 59 DoAC, 48 2AP, 38 AP+AC, 15 AP+DoAC) and 474 not (non-AT). When adjusted for covariates, AT patients were more likely to have ICH ($p=0.0004$), more invasive surgical interventions ($p=0.0188$), functional dependency ($GOSE\leq 4$; $p<0.0001$) and mortality ($p<0.0001$). Risk of mortality is notably high with 2AP (OR 5.74; $p=0.0003$) and AC+AP (OR 4.12; $p=0.0118$). **Conclusions:** Elderly trauma patients on AT, especially combination therapy, have higher risks of ICH and poorer outcomes compared to those who are not.

P.089**AMPA receptor modulation as a therapeutic strategy to enhance survival of spinal cord neural stem cells**

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Background: Transplantation of neural stem/progenitor cells (NSPCs) following spinal cord injury (SCI) is a promising strategy to enhance regeneration but is limited by poor survival of grafted cells. Recently, we demonstrated for the first time that the excitatory neurotransmitter glutamate, which is released after SCI, promotes survival/proliferation of spinal cord NSPCs via the AMPA subtype of glutamate receptors. Here, we examine the therapeutic potential of selective AMPA receptor modulation on NSPC survival using allosteric AMPA receptor modulators known as ampakines. **Methods:**