**Plenary Oral Presentations**

**PL01**
Multicentre before-after implementation study of the Ottawa subarachnoid hemorrhage strategy

J. J. Perry, MD, MSc; M. L.A. Sivilotti, MD, MSc, M. Emond, MD, MSc; C. M. Hohl, MD, MHSc; H. Lesiuik, MD, J. Sutherland, MEd, M. Khan, MSc; K. Abdulaziz, MSc; G. A. Wells, PhD; I. G. Stiell, MD, MSc, University of Ottawa, Department of Emergency Medicine, Ottawa, ON

**Introduction:** The Ottawa SAH Rule was developed to identify patients at high-risk for subarachnoid hemorrhage (SAH) who require investigations and the 6-Hour CT Rule found that computed tomography (CT) was 100% sensitive for SAH 6 hours of headache onset. Together, they form the Ottawa SAH Strategy. Our objectives were to assess: 1) Safety of the Ottawa SAH Strategy and its 2) Impact on: a) CTs, b) LPs, c) ED length of stay, and d) CT angiography (CTA).

**Methods:** We conducted a multicentre prospective before/after study at 6 tertiary-care EDs January 2010 to December 2016 (implementation July 2013). Consecutive alert, neurologically intact adults with a headache peaking within one hour were included. SAH was defined by subarachnoid blood on head CT (radiologists final report); xanthochromia in the cerebrospinal fluid (CSF); >1 x 106/L red blood cells in the final tube of CSF with an aneurysm on CTA.

**Results:** We enrolled 3,669 patients, 1,743 before and 1,926 after implementation, including 185 with SAH. The investigation rate before implementation was 89.0% (range 82.9 to 95.6%) versus 88.4% (range 85.2 to 92.3%) after implementation. The proportion who had CT remained stable (88.0% versus 87.4%; p = 0.60), while the proportion who had LP decreased from 38.9% to 25.9% (p < 0.001), and the proportion investigated with CTA increased from 18.8% to 21.6% (p = 0.036). The additional testing rate (i.e. LP or CTA) diminished from 50.1% to 40.8% (p < 0.001). The proportion admitted declined from 9.8% to 7.3% (p = 0.008), while the mean length of ED stay was stable (6.2 +/- 4.0 to 6.4 +/- 4.1 hours; p = 0.45). For the 1,201 patients with CT in 6 hours, there was an absolute decrease in additional testing (i.e. LP or CTA) of 15.0% (46.6% versus 31.6%; p < 0.001). The sensitivity of the Ottawa SAH Rule was 100% (95% CI: 98-100%), and the 6-Hour CT Rule was 95.3% (95% CI: 88.9-98.3) for SAH. Five patients with early CT had SAH with CT reported as normal: 2 unruptured aneurysms on CTA and presumed traumatic LP (determined by treating neurosurgeon); 1 missed by the radiologist on the initial interpretation; 1 dural vein fistula (i.e. non-aneurysmal); and 1 profoundly anemic (Hgb 63g/L).

**Conclusion:** The Ottawa SAH Strategy is highly sensitive and can be used routinely when SAH is being considered in alert and neurologically intact headache patients. Its implementation was associated with a decrease in LPs and admissions to hospital.

**Keywords:** subarachnoid hemorrhage

**PL02**
Probiotic regimen for outpatient gastroenteritis utility of treatment (PROGUT) study: a multicenter randomized controlled trial

S. Freedman, MD, CM, MSc, S. Williamson-Urqhart, BSc, K. Farion, MD, S. Gouin, MD, CM, A. Willan, PhD, N. Poonai, MD, MSc, K. Hurley, MD, MHl, P. Sherman, MD, Y. Finkelstein, MD, BSc, B. Lee, MD, X. Pang, PhD, L. Chui, PhD, D. Schnadower, MD, MPH, J. Xie, MD, MPH, M. Gorelick, MD, MSCE, S. Schuh, MD, University of Calgary, Calgary, AB

**Introduction:** Gastroenteritis accounts for 1.7 million emergency department visits by children annually in the United States. We conducted a double-blind trial to determine whether twice daily probiotic administration for 5 days, improves outcomes. Methods: 886 children aged 348 months with gastroenteritis were enrolled in six Canadian pediatric emergency departments. Participants were randomly assigned to twice daily Lactobacillus rhamnosus RO011 and Lactobacillus helveticus RO052, 4.0 x 109 CFU, in a 95:5 ratio or placebo. Primary outcome was development of moderate-severe disease within 14 days of randomization defined by a Modified Vesikari Scale score 9. Secondary outcomes included duration of diarrhea and vomiting, subsequent physician visits and adverse events. Results: Moderate-severe disease occurred in 108 (26.1%) participants administered probiotics and 102 (24.7%) participants allocated to placebo (OR 1.06; 95% CI: 0.77, 1.46; P = 0.72). After adjustment for site, age, and frequency of vomiting and diarrhea, treatment assignment did not predict moderate-severe disease (OR, 1.11, 95% CI, 0.80 to 1.56; P = 0.53). In the probiotic versus placebo groups, there were no differences in the median duration of diarrhea [52.5 (18.3, 95.8) vs. 55.5 (20.2, 102.3) hours; P = 0.31], vomiting [17.7 (0, 58.6) vs. 18.7 (0, 51.6) hours; P = 0.18], physician visits (30.2% vs. 26.6%; OR 1.19; 95% CI 0.87, 1.62; P = 0.27), or adverse events (32.9% vs. 36.8%; OR 0.83; 95% CI 0.62, 1.11; P = 0.21). Conclusion: In children presenting to an emergency department with gastroenteritis, twice daily administration of 4.0 x 109 CFU of a Lactobacillus rhamnosus/helveticus probiotic does not prevent development of moderate-severe disease or improvements in other outcomes measured.

**Keywords:** probiotic, diarrhea, pediatrics