OP-007

Predictors of the length of stay in an intensive care unit and the intracranial pressure in severe traumatic brain injury

Moventhiran R, Saiful Azli, Azmin Kass

Department of Neursurgery, Hospital Sungai Buloh

ABSTRACT

Introduction: The purpose of this study was to investigate the relationship between intracranial pressure (ICP) and the length of stay in the intensive care unit (ICU) in a large cohort of patients with severe traumatic brain injury and to identify the contributing factors. **Materials and Methods:** This was a single-centre database review of identified data that had been prospectively collected from 2015 to 2022; setting: Neurosurgical Unit and ICU, Sungai Buloh,Selangor. **Results:** In a cohort of 120 severe traumatic brain injury (TBI) patients, 85 (70.9%) had a motor Glasgow Coma Scale score of 1 to 3 on admission and 35 (29.1%) had 4 to 5. Intracranial pressure during the ICU course was 18.8±11.9 mm Hg. Favourable outcome was obtained in 45 (37.5%), and unfavourable, in 75(62.5%) patients with a mortality of 39%. ICU length of stay (LOS) was 21.4±13.9 days. A higher ICP was not significantly associated with longer ICU LOS (p=0.4). However, presence of a mass lesion on admission head computed tomography was strongly correlated with a prolonged ICU LOS (p=0.0008). Diffuse injuries with basal cistern compression or midline shift were marginally associated with a longer ICU LOS (p=0.056). **Conclusion:** ICP is not related to the length of stay in the ICU when handled and monitored in accordance with BTF standards. Independent of other indications of injury severity and intracranial pressure history, patients with severe TBI and a mass lesion on entry head computed tomography were observed to have extended ICU LOS.

Keywords: Computed tomography; Intensive care unit; Intracranial pressure; Length of stay; Mass lesions; Traumatic brain injury

OP-008

Biomarkers for glutaric aciduria type 1 on high risk screening by tandem mass spectrometry

Muhd Irfan Bukhari Ahmad Nazri, Nurul Aina Aqilah Rosli, Anasufiza Habib, Azzah Hana Abu Yamin

Biochemistry Unit, Specialized Diagnostic Centre, Institute for Medical Research, National Institute of Health, Ministry of Health, Selangor, Malaysia

ABSTRACT

Introduction: Glutaric aciduria type I (GA1; OMIM 231670) is a rare autosomal recessive disorder that usually presents with macrocephaly, motor disability or acute encephalopathy. Deficiency in glutaryl-CoA dehydrogenase enzyme results in accumulation of glutarylcarnitine (C5DC) which can be measured by tandem mass spectrometry (MS/MS). This study aims to compare C5DC and its secondary biomarkers in the screening of GA1 with inclusion of new potential biomarkers. **Materials and Methods:** A retrospective study of blood spot high risk screening by MS/MS (non-kit derivatized method) from 2017 to 2021 at Institute for Medical Research identified 17 samples with GA1 (positive rate of 0.06%; 17/26,363). Diagnosis is confirmed with urine organic acid and/or molecular study. 19 randomly selected false positive screening and normal controls were included, respectively. The outcome is to compare the values of currently used biomarkers (C5DC and C5DC/C4 ratio) and new potential biomarkers (C5DC/C8 and C5DC/C16 ratio) between groups. Statistical analysis was performed using Microsoft Excel. **Results:** The C5DC and C5DC/C4 values in false positive patients ranged from 0.21-0.44 µmol/L (reference range <0.20 umol/L) and 0.14-2.23 (reference range <0.95), respectively. There was an overlap of C5DC/C4 ratio values between true GA1 and false screening groups. Post-hoc analysis of C5DC/C8 and C5DC/C16 values showed significantly different (p<0.003) between 3 groups (true GA1, false screening and normal control). **Conclusion:** Additional biomarkers C5DC/C8 and C5DC/C16 ratios could increase the confidence of GA1 detection.

Keywords: Glutaric aciduria type 1, C5DC, MS/MS, macrocephaly