Paediatric Neuro-critical Care: beyond BASIC

A significant proportion of paediatric patients presenting to the Emergency Department have an acute neurological injury, and multiple studies have shown that at any given time about 20% of patients admitted to paediatric intensive care have some form of neurological injury or are at risk of neurological problems. In the adult and increasingly also paediatric literature, there is convincing evidence that when this group of patients receives care under dedicated neuro-critical care teams, their outcome significantly improves. One of the aims of these teams is to provide protocol-driven, consistent neuro-critical care. Over the last decade, paediatric neuro-critical care has emerged as a sub-speciality. At present, with relatively small patient numbers in pediatrics, it is difficult to justify separate paediatric neuro-critical care units. However, promoting a culture of brain-directed critical care by training more healthcare providers will likely have a positive impact on outcome for these patients. This would also help foster a coordinated and inter-disciplinary approach to caring for neurologically injured critically ill patients in Australia and New Zealand.

With this in mind, we are planning to have a one day programme focusing on managing paediatric patients with acute brain injury or at risk of neurological problems. The course is designed to cover most of the paediatric neurological emergencies with a combination of lectures and skill stations. The focus of the course will be on structured assessment, communication, neuro-resuscitation, neuro-protection and neuro-monitoring to guide management of these patients. Emphasis will be placed on the goal that this group of patients should continue to receive brain-directed critical care from the time they present to the emergency department/hospital and throughout their stay in ICU.

To register go to: https://www.schn.health.nsw.gov.au/pncc-beyond-basic

Proposed lectures:

1. Course outline/paediatric NCC
2. Basics of neuro physiology
3. Refractory status epilepticus
4. cEEG in ICU
5. Refractory ICP in TBI
6. Resuscitation post-cardiac arrest including TTM
7. Acute ischaemic stroke
8. Life after PICU - rehabilitation
9. Pharmacotherapy in neuro-critical care
10. Acute haemorrhagic stroke
11. Encephalitis/meningitis - approach with emphasis on autoimmune encephalitis
12. Neuroprognostication

Skill station/simulation:

1. Case discussion: Refractory status epilepticus/ischaemic stroke
2. Sim: Patient with TBI having refractory raised ICP
3. Neuroimaging: How to recognise life-threatening neurological emergencies
4. EEG for critical care staff
5. Neuromonitoring– ICP monitoring-EVD/Codman, NIRS, brain tissue oxygen monitoring, TCD, microdialysis