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Editorial Note

Recent update in pediatric neurocritical care: Preface

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In Taiwan, central nervous system associated conditions are the common cause of admission in the Pediatric Intensive Care Units (PICU). Brain is vulnerable to injury caused by various systemic and neurological diseases including head injury, thus the quality of neurocritical care is tremendously important to the outcome of the patients in the PICU. Since 2019 the Congress of Pediatric Neurocritical Care Consortium invited the pediatric critical care experts in Taiwan to share the updated knowledge once every 3 months to achieve this goal. We publish this special issue of pediatric neurocritical care to share with more experts.

The first part of this issue includes the immune therapy, therapeutic hypothermia, and ketogenic diet in the update treatment of neurocritical children. Immunotherapy has a very important role in the treatment of neuroinflammatory diseases and neurocritical care. Precise and even target therapy for febrile infection-related epilepsy syndrome (FIRES) has

been developed as Dr. Sakuma et al. described [1]. Target temperature management (TTM), previously termed therapeutic hypothermia, is beneficial to the neonatal hypoxic ischemic encephalopathy and other neurocritical status in both adult and pediatric patients [2]. My neurological team at Chang Gung Children's Hospitals in Taiwan has applied ketogenic diet therapy to children with refractory epilepsy for more than 20 years. I am pleased that ketogenic diet has become globally popular and has extensive indications for many other neurological disorders, which include status epilepticus and other severe situations [3].

The second part of this issue includes the recent advance in neurocritical monitoring. In addition to the invasive intracranial pressure (ICP) monitoring, the non-invasive transcranial Doppler has been applied for more than three decades when neurosonology was first developed for young infants with naturally acoustic window - the anterior fontanel [4]. The other non-invasive continuous EEG monitoring was not popular until the recent decade. Dr. Yang makes a review of the modern multimodal neurocritical monitoring [5]. Ultrasound of the optic nerve sheath diameter, a non-invasive, real-time and point-of-care tool to detect the ICP in neurocritically ill children was also introduced in this part [6].

The third part of this issue includes some challenging issues, such as abusive head trauma related to child abuse [7], anti-NMDA receptor encephalitis [8], neurocritical care and

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surgical management of intraventricular hemorrhage and posthemorrhagic hydrocephalus in premature infants [9,10]. In the third part, we also include two original articles of the studies of seizure outcomes after TTM and one study about the diminished Toll-like receptor response in FIRES [11–13].

This special issue provides a lot of updated information for pediatric neurocritical care though some interesting issues may not be included due to the limitation of space. Comments and feedback from you, the readers, are very important and welcome.

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