

encephalitis but not in 39 controls. These atypical neurons resembled gangliogliomas (n=3) or ganglioneuroblastoma (n=1). Abnormal neuroglial elements were closely related to immune infiltrates resected from 4 of 4 cases. Abnormal neurons within teratomas distinguish cases with NMDAR encephalitis from controls and may promote the development of autoimmunity. (Day GS, et al. Abnormal neurons in teratomas in NMDAR encephalitis. **JAMA Neurology** 2014 Jun;71(6):717-24).

COMMENTARY. The authors propose that pathological examination of teratomas removed from patients with NMDAR encephalitis should first focus on areas containing CNS tissue and second on neurons closely approximated by inflammatory infiltrates. The colocalization of dysplastic CNS neurons and inflammatory infiltrates support an autoimmune cause for the clinical encephalitic presentation [1].

Broca's aphasia: a new phenotype of anti NMDAR encephalitis.

Investigators at Le Kremlin-Bicetre and centers in Paris, France, report a novel case of anti NMDAR encephalitis in a 4-year-old girl who presented with partial seizures that evolved to sudden and isolated Broca's aphasia and subsequently resolved. Anti NMDAR antibodies were positive in CSF and serum [2].

References.

1. Day GS, et al. *JAMA Neurol.* 2014 Jun;71(6):717-24.
2. Deiva K, et al. *Eur J Paediatr Neurol.* 2014 Jun 11. [Epub ahead of print]

ROTAVIRUS-ASSOCIATED ENCEPHALOPATHY AND SUD

Investigators at Fujita University School of Medicine, Toyoake, Aichi, Japan, performed a nation-wide survey to determine the incidence and clinical features of rotavirus-associated encephalitis/encephalopathy (RV-AE) and sudden unexpected death (SUD) in Japan. Of questionnaires sent to hospitals, 963 (70.5%) were returned, reporting 58 cases of RV-AE diagnosed by immunochromatography between 2009 and 2011 and 7 cases of SUD in the same period. Neurological sequelae occurred in 15/58 (25.9%) and fatal outcomes in 7/58 (12.1%); 36/58 (62.1%) had no sequelae. In patients with RV-AE, CSF pleocytosis was observed in 9/40 (22.5%) patients and protein levels were elevated in only 4/40 (10%). Serum sodium was normal in 40%, elevated in 17.8%, and low in 42.2%. CT showed brain edema in 9/34 (26.5%), and MRI was abnormal in 64.7% patients. Elevated lactic dehydrogenase (>500 IU/L) or acidemia (pH<7.15) was an indication of a poor prognosis. Annual incidence of RV-AE was 44 and SUD 4.9 cases. (Kawamura Y, et al. Nationwide survey of rotavirus-associated encephalopathy and sudden unexpected death in Japan. **Brain Dev** 2014 Aug;36(7):601-7).

COMMENTARY. In Japan, the annual number of cases of RV-AE was estimated at 41.1 and of SUD 5.0. In the US, a fatality rate of 1 death per 1616 rotavirus hospitalizations (0.06%) is cited in a 2007 report [1]. Since rotavirus vaccines became available in the US in 2006, ED visits and hospitalizations for RV related complications have decreased by 50,000 cases in children younger than 5 years [2].

References.

1. Fischer TK, et al. J Infect Dis. 2007 Apr 15;195(8):1117-25.
2. American Academy of Pediatrics. Rotavirus infections. In: Pickering LK, ed. Red Book: 2012 Report of the Committee on Infectious Diseases. 29th ed. Elk Grove Village, IL: AAP; 2012:626-29.

TRAUMATIC DISORDERS

CONCUSSION SEVERITY AND SYMPTOM RESOLUTION

Investigators at University of Colorado conducted a prospective longitudinal cohort study of children 8 to 18 years old presenting to the ED <6 hours after concussion. Of 234 subjects enrolled, 179 (76%) completed follow-up, and 38 (21%) experienced delayed symptom resolution (DSR). DSR was defined as 3 or more symptoms 1 month after injury that were absent in the week before injury. Initial symptom severity was not significantly associated with DSR 1 month after concussion but was associated with post-concussion syndrome (PCS). A total of 22 (12%) subjects had PCS. Patients were considered to have PCS if they reported 3 or more symptoms on the Concussion Symptom Inventory that aligned with PCS ICD-10 criteria. These 8 include headache, dizziness, fatigue, irritability, impaired concentration for mental tasks, impaired memory, insomnia, and reduced tolerance to stress, excitement, or alcohol. Three of 6 of the most characteristic symptoms of DSR were also most characteristic of early symptom resolution. Cognitive symptoms were more characteristic of subjects reporting DSR and warrant particular attention in future study. Follow-up is recommended for all patients after ED evaluation of concussion to monitor for DSR. (Grubenhoff JA, Deakyne SJ, Brou L, Bajaj L, Comstock D, Kirkwood MW. Acute concussion symptom severity and delayed symptom resolution. **Pediatrics** 2014 Jul;134(1):54-62).

COMMENTARY. This study shows an inability to predict the resolution or persistence of post-concussive symptoms at the time of injury and ED visit. Follow-up and serial symptom assessment are essential for optimal concussion management in children.

Health-related quality of life following concussion.

Comparison of pre-injury health-related quality-of-life (HRQoL) of children who have sustained mild traumatic brain injury (mTBI), children with mild non-brain injuries, and uninjured children showed that HRQoL of children with mTBI was not significantly different between pre- and post-injury at 1, 3, 6 and 12 months post-injury. Therefore, children who sustain mTBI and have significantly lower HRQoL within the first year post-injury merit further evaluation [1].

References.

1. Pieper P, Garvan C. Brain Inj. 2014;28(1):105-13.