Posttraumatic seizures case series

One hundred and eighty-six patients with traumatic brain injury were enrolled. Their full clinical data were collected. Single-factor analysis and logistic regression analysis of risk factors related to early post-traumatic epilepsy (EPTE) were performed. The traumatic brain injury outcome of patients was determined.

Single-factor analysis showed that there were significant differences of age ($p = 0.011$), epilepsy history ($p < 0.001$), injury site ($p = 0.004$), injury type ($p < 0.001$) and injury degree ($p < 0.001$) between the EPTE group (40 patients) and non-EPTE group (146 patients). Logistic regression analysis showed that the injury site, injury type and injury degree were the main risk factors for EPTE. The odds ratio values of injury site, injury type and injury degree were 1.977 (1.473-2.679), 2.096 (1.543-2.842) and 2.376 (1.864-3.609), respectively. The logistic regression equation was $P = Exp(-1.473 + 0.698 \times \text{injury site} + 0.717 \times \text{injury type} + 0.935 \times \text{injury degree})$. The sensitivity and specificity of injury site, injury type and injury degree for predicting EPTE were 79.2% and 80.5%, 78.9% and 85.7% and 84.2% and 81.0%, respectively. The analysis of prognosis showed that the Glasgow Outcome Scale/Activity of Daily Living Scale scores in the EPTE group were significantly lower than those in non-EPTE group ($p < 0.05$).

Injury site, injury type, and injury degree are the main risk factors for post-traumatic epilepsy. Traumatic brain injury outcome can be affected by early post-traumatic epilepsy. [1].

Aim: Use the National Health Insurance Research Database of Taiwan to determine whether patients with posttraumatic epilepsy (PTE) have an increased risk of mortality. Methods: Patients ≥20 years old ever admitted because of head injury (per International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes 850–854 and 959.01) during 2000–2012 were enrolled into a traumatic brain injury (TBI) cohort. The TBI cohort was divided into with PTE (ICD-9-CM code 345) and posttraumatic nonepilepsy (PTN) cohorts. We compared the PTE and PTN cohorts in terms of age, sex, and comorbidities. We calculated adjusted hazard ratios (aHRs) and 95% confidence intervals (CIs) of all-cause mortality risk in these cohorts. Results: Patients with PTE had a higher incidence rate (IR) of mortality than did patients with TBI alone (IR per 1000 person-years: 71.8 vs. 27.6), with an aHR 2.31 (95% CI = 1.96–2.73). Patients with PTE aged 20–49, 50–64, and ≥65 years had, respectively, 2.78, 4.14, and 2.48 times the mortality risk of the PTN cohort. Patients with any comorbidity and PTE had 2.71 times the mortality risk as patients in the PTN cohort. Furthermore, patients with PTE had 28.2 increased hospital days and 7.85 times as frequent medical visits per year compared with the PTN cohort. Conclusion: Taiwanese patients with PTE had approximately 2 times the mortality risk and an increased medical burden compared to patients with TBI only. Our findings provide crucial information for clinicians and the government to improve TBI outcomes [2].

Krylov et al. conducted a prospective study of 237 patients with TBI of varying severity. The patients were hospitalized and examined in Moscow neurosurgery departments. Then they participated in the follow-up observation for 2 years. PTS were classified as early (occurred from 1 to 7 days after TBI) and late (occurred later than 7 days).

Forty-three people (18.1%) experienced early seizures, 15 patients (6.3%) had late seizures. The early seizures were a significant predictor of the late seizures. In the group of patients with early seizures,

the proportion of severe TBI was significantly higher. Subdural hematoma, depressed skull fracture, alcohol abuse were reliable predictors of early and late PTS. Thus, these factors increased the risk of posttraumatic epilepsy (PTE) [3].

2016

In a retrospective multicenter cohort study including 5 regional pediatric trauma centers affiliated with academic medical centers, the authors examined data from 236 children (age < 18 years) with severe traumatic brain injury (TBI) (admission Glasgow Coma Scale score ≤ 8, ICD-9 diagnosis codes of 800.0-801.9, 803.0-804.9, 850.0-854.1, 959.01, 950.1-950.3, 995.55, maximum head Abbreviated Injury Scale score ≥ 3) who received tracheal intubation for ≥ 48 hours in the ICU between 2007 and 2011.

Of 236 patients, 187 (79%) received seizure prophylaxis. In 2 of the 5 centers, 100% of the patients received seizure prophylaxis medication. Use of seizure prophylaxis was associated with younger patient age ($p < 0.001$), inflicted TBI ($p < 0.001$), subdural hematoma ($p = 0.02$), cerebral infarction ($p < 0.001$), and use of electroencephalography ($p = 0.023$), but not higher Injury Severity Score. In 63% cases in which seizure prophylaxis was used, the patients were given the first medication within 24 hours of injury, and 50% of the patients received the first dose in the prehospital or emergency department setting. Initial seizure prophylaxis was most commonly with fosphenytoin (47%), followed by phenytoin (40%).

While fosphenytoin was the most commonly used medication for seizure prophylaxis, there was large variation within and between trauma centers with respect to timing and choice of seizure prophylaxis in severe pediatric TBI. The heterogeneity in seizure prophylaxis use may explain the previously observed lack of relationship between seizure prophylaxis and outcomes [4].

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