

## Epileptic seizures as a primary cause for admission to neurology intensive care unit

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**Background and Objective:** Epileptic seizures are significant cause of admission to neurology intensive care unit (NICU). Our NICU (6 beds) serves catchment area of 300,000. Patients with epileptic seizures require usually short stay due to postseizure confusion, unstable vital functions, repeated seizures and convulsive status epilepticus. This study aims to determine the incidence and specific features of epileptic seizures as a primary cause for admission to NICU.

**Methods:** This is a retrospective analyses of medical records, data on medical history, neurological features, laboratory and EEG findings and therapeutic measures were obtained.

**Results and Discussion:** Among 231 patients hospitalized at NICU from January 1, 2006 to December 31, 2007, 49 patients (33 men and 16 women, 18 to 86 years old) were admitted to our NICU because of epileptic seizures with complicated course. Generalized seizures were observed in 96 %. 15 patients (30,6%) had convulsive status epilepticus, 2 patients (4%) had partial motor status epilepticus. **Etiological factors** were alcohol withdrawal in 24.5% cases, cerebrovascular pathology in 22.4% cases, head trauma in 12.4% cases. Combined etiology of alcohol withdrawal and head trauma was found in 16.4%. 18.3 % of cases were patients with known history of epilepsy. Tumor, AVM and metabolic disorder represented 6 % of our cohort. **EEG:** 46 patients (94%) had abnormal EEG findings, only 3 patients (6%) had normal EEG. 30 patients (63%) had slow activity (32% focal and 33% generalized intermittent). Epileptic discharges were found in 16 patients (35%), focal spikes in 9 patients (19.5%) and generalized epileptic activity was found in 6 patients (15.5%). **Therapy:** 36.7% of patients were treated by one antiepileptic drug (AED), 40.8% by two, 20.4% by three AEDs, and one patient (2%) by four AEDs. In therapy of cumulated epileptic seizures or convulsive status epilepticus (21 patients, 42%) phenytoin and diazepam were most frequently used, alone or in combination. Valproic acid and midazolam were used less commonly (6 patients, 12%). After suppression of acute seizures, new AED was started (phenytoin 11 patients, carbamazepine 5 patients, valproic acid 5 patients) or previous medication adjusted (lamotrigine 3 patients, topiramate 3 patients, levetiracetam 2 patients). **Prognosis:** Only 3 patients diagnosed with status epilepticus (2 with brain contusion, 1 with chronic obstructive lung disease) required orotracheal intubation and assisted ventilation. One of the ventilated patients died due to respiratory complication.

The high incidence of alcohol withdrawal with or without head trauma reflect problem of alcohol abuse in Czechs. In seizures secondary to stroke, seizures can be missed when it is not witnessed, and reoccurrence of hemiparesis due to seizures can be misdiagnosed as new stroke.<sup>1,2</sup> As for treatment, in our experience, diazepam followed by saturating dose of phenytoin if seizures are not controlled is safe, without cardiac or other complications. In this cohort of patients, no thiopental anesthesia was required. Valproic acid and midazolam were used less often due to less familiarity and fear of respiratory suppression with midazolam. The old AEDs were used as first choice as we need to reach therapeutic levels safely and quickly.

**Conclusions:** Patients with epileptic seizures represent 21% of patients hospitalized in NICU over 24 months, most manifesting with generalized convulsive seizures. Alcohol withdrawal with or without head trauma were seen in 41%, and cerebrovascular pathology in 22.3%.

### References

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2. Bladin F, Alexandrov AV, Bellavance A, et al. Seizures after stroke. A prospective multicenter study. *Arch Neurol* 2000; 57:1617-22.