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Desperately needed in Indonesia: Basic Epilepsy Surgery Centers with Simple but Reliable pre-surgical investigations, based on Semarangâ€™s Experience

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Background: Even with optimized anti-epileptic medications, 30% of epilepsy patients will be refractory and this condition leads to cognitive and psychosocial decline, resulting in worse quality of life and higher mortality. With 0,75% prevalence, there are more than 2.0 million epileptic in Indonesia, about 360.000 will be refractory, and half of them are potential candidates for epilepsy surgery (ES). After 17 years since the first ES on July 1999, number of ES increases every year reaching around 50 cases per year. By the end of 2017, Â the total number reached 615 and most was temporal lobe epilepsy (TLE) cases. Pre-surgical investigations were compared in relation to the seizure free results between the first five-year and the recent twelve-year. Despite the excellent result shown, all of these ES were still performed in Semarang (Diponegoro University), and demographic analysis showed that 80% patients came from Java-Bali area. So that new basic centers capable of performing ES for simple TLE cases are desperately needed to improve treatment for refractory epilepsy cases elsewhere.

Material and methods: Until the end of 2017, there were 615 ES cases, including 514 Temporal Lobe Epilepsies (TLEs). Pre-surgical investigations were grouped as Simple (MRI with specific protocol and routine EEG), Difficult (needs long-term ictal EEG, and /or PET CT), and Complex (needs invasive or intracranial/ subdural grid EEG, and or Electrocorticography/ ECoG during the surgery). For the first five year-period, besides seizure semiology, decision to operate were based on MRI and routine EEG (Simple) in 54 out of 56Â (96,4%) TLE cases. One patient had long-term ictal EEG and another had subdural grid EEG implanted, both patients showed visually normal MRI. But for the recent twelve-year, Simple TLEs occupy only 234 out of 458 (51%) TLE cases. Long-term ictal EEG were performed in 161 patients (35,2%), PET study in 39 patients (8,5%), subdural grid EEG in 30 patients (6,5%), and ECoG in 61 patientsÂ (13,3%).

Results: As a new ES center performing only simple TLE cases, our surgical results were Class I: 82%, Class II: 11%, and Class III: 7% (9). As a semi advance ES center (after more than 5 years, and only half were simple ES cases), the Class I or seizure free results were 78,7% for simple TLEs, 73,4% for Difficult

TLEs, and 65,2% for Complex TLEs.Â Â Â Â Â Â Â Â Â Â Â Â Â

Demographic distribution showed that almost 80% of ES patients came from Java-Bali area, and half of them were from Central Java Province with Semarang as its capital. Patients from other parts of the country were scarce, especially from remotely located islands of East Indonesia.

Conclusion: For the first five year, -as a basic ES center- we relay most on good MRI besides detailed study on seizure semiology and routine EEG. The Class I or Seizure Free result was best in the Simple TLEs with MRI showing discrete unilateral lesion in the temporal lobe. With 17 years experience, and a structured ES program including those patients needed invasive pre-surgical investigations, Semarang is a semi-advance center capable for research and training. This fact should encourage hospitals with micro-neurosurgical capabilities to initiate a new Basic ES Center by sending their neurologist and neurosurgeon to Semarang, so that ES services may become available to PWEs in all part of Indonesia.

Keywords

Epilepsy | Epilepsy Surgery | Temporal Lobe Epilepsy | Epilepsy Surgery Center | Pre-surgical investigation