

## SOUTH EAST ASIA

# The need for epilepsy surgery services in Indonesia

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### Abstract

**Background and Objective:** Early surgical intervention in appropriately screened patients is likely to improve overall quality of life and reduce costs to the patient and community. But, surgical treatment for epilepsy remains underutilized in Indonesia. The purpose of this study is to determine whether there are candidates for epilepsy surgery in Indonesia. **Methods:** The study was performed in Hasan Sadikin and St. Borromew Hospitals, Bandung, West Java, Indonesia. Medical records of patients with epilepsy from year 2005 at Hasan Sadikin Hospital, and data of patient with epilepsy or seizures who had brain MR imaging at the Radiology Department, St. Borromew Hospital between 2000 and 2005 were retrospectively analysed. **Results:** From the total of 118,314 new patients visiting out-patient clinic in 2005, 253 (0.21%) had epilepsy. Epilepsy is the second most common disease encountered in neurology outpatient clinic after stroke. Brain MR imaging from 139 seizure and epileptic patients showed abnormalities in 73 (52.5%), which were hippocampal sclerosis, hippocampal atrophy or hypertrophy, hippocampal cyst or gliosis, temporal lobe atrophy and hemiatrophy. **Conclusion:** There were significant proportion of epilepsy patients who were possible candidates for surgical treatment in Bandung, Indonesia. There is urgent need for development of epilepsy surgery service in Indonesia.

### INTRODUCTION

The goal of any treatment for epilepsy is to permit the patient to live as normal a life as possible, maximizing normal function and minimizing adverse effects are parts of the overall goal of therapy, whether medical or surgical.<sup>1</sup> Early surgical intervention in appropriately screened patients is likely to result in better long-term neurobehavioral status in addition to controlling seizures, thereby improving overall quality of life and reducing costs to the patient and community. Approximately 30% of adults with localization-related epilepsy have medically refractory seizures.<sup>2,3</sup>

Epilepsy is a common disorder in Indonesia. Based on a point prevalence of 5 per 1,000 population, there are over 1 million people with epilepsy in Indonesia. Previous study in year 1998 at Hasan Sadikin Hospital, Bandung on 1,320 epilepsy patients showed that 42.6% had localization-related epilepsy. Of these, 41.7% did not come back for follow-up. Of the remaining 770 patients who attended the follow-up, 11.3% were intractable to antiepileptic drugs.<sup>4</sup>

To date, surgical treatment for epilepsy remains underutilized and was only done in a small proportion of epilepsy patients in Indonesia. The

purpose of this study is to determine whether there are significant proportions of epilepsy patients in Indonesia who may benefit from epilepsy surgery.

### METHODS

This study was performed in Hasan Sadikin and St. Borromew Hospitals in Bandung, West Java, Indonesia. Medical records of epilepsy patients from year 2005 at Hasan Sadikin Hospital and data of patient with seizures or epilepsy who had brain MR imaging at the Radiology Department, St. Borromew Hospital between 2000 and 2005 were retrospectively analysed.

### RESULTS

Hasan Sadikin Hospital is the main tertiary referral hospital in West Java. Of the 118,314 new patients visiting out-patient clinic of the Hospital in 2005, 253 (0.21%) had epilepsy. Most (62%) of the epilepsy patients were more than 14 years old (Figure 1). In Neurology Department, epilepsy was the second most common disease encountered in out-patient clinic after stroke (Figure 2).

As the patients attending Hasan Sadikin Hospital were mostly from middle to low

Figure 1: Age distribution of epilepsy patients in Hassan Sadikin Hospital, Bandung

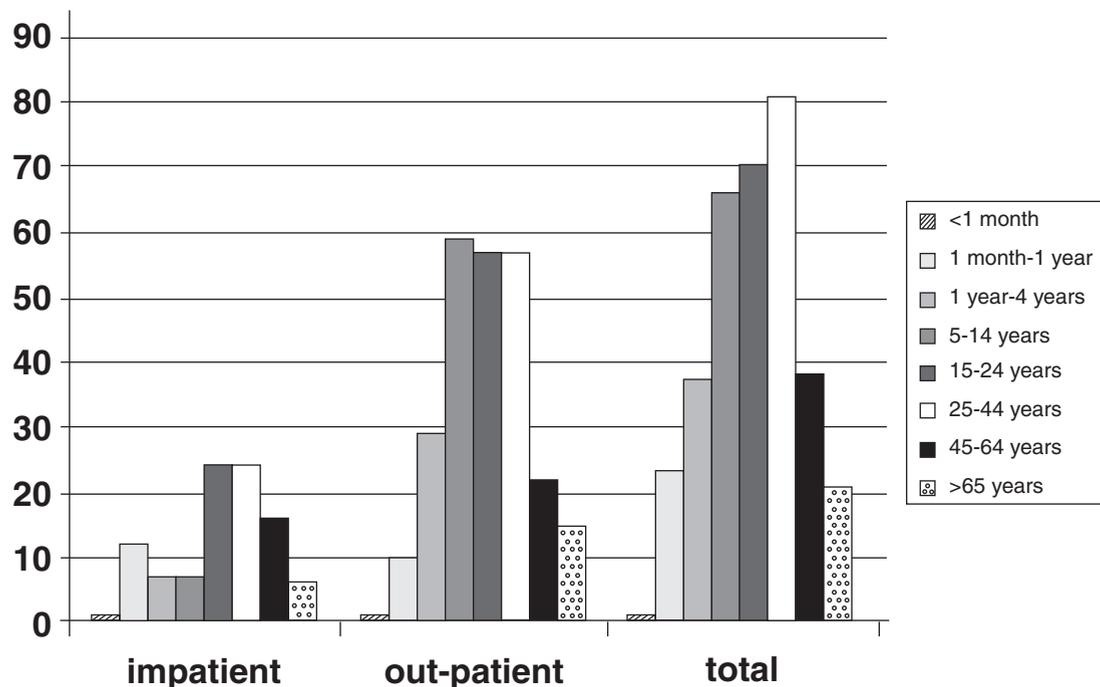
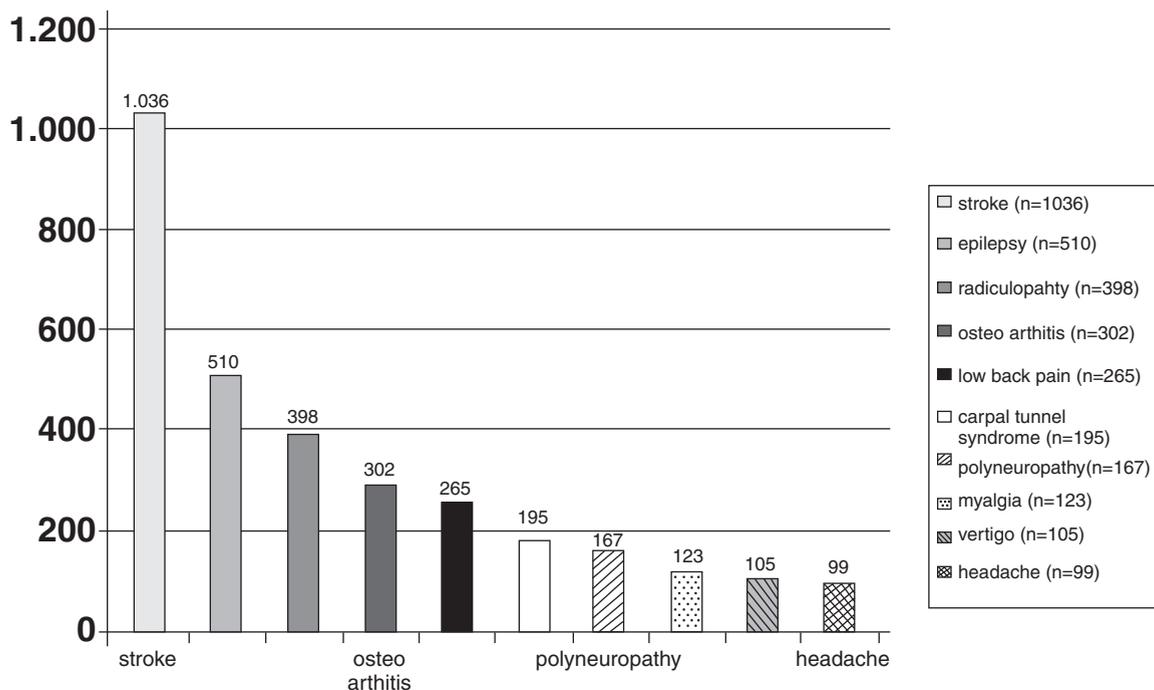


Figure 2: Diagnosis of Neurology out-patient clinic in Hassan Sadikin Hospital, Bandung



socioeconomic class, and could not afford the expensive laboratory examination such as MR imaging, the MR imaging study was carried out in St. Borromew Hospital. St. Borromew hospital is the largest private hospital in Bandung and the only hospital in West Java with 1.5 Tesla MRI. There were 139 patients with epilepsy or seizures, who had MR imaging at the Radiology Department St. Borromew Hospital in 2000 to 2005. Of these, abnormalities were seen in 73 (52.5%) patients. The abnormalities were: hippocampal sclerosis (16), hippocampal atrophy (14), temporal lobe atrophy (10), hemiatrophy (5), hippocampal cyst (4), cyst (3), glioma (3); two cases each for hippocampal hypertrophy, hippocampal glioma, cortical dysplasia, temporal lobe infarction, post trauma, and one case each for central atrophy, ring atrophy, encephalitis, temporal lobe oedema, temporal lobe nodule, temporal lobe glioma, porencephaly, amygdala atrophy.

## DISCUSSION

Our study shows that epilepsy is a major health problem in Indonesia. In the Neurology Department of Hasan Sadikin Hospital, the main tertiary referral centre in West Java, it was the second most common condition encountered after stroke, with a significant proportion being resistant to antiepileptic drugs.

Our study of Brain MR imaging in patients with epilepsy and seizures in St. Borromew Hospital, Bandung also showed that close to half of the patients have a lesion potentially remediable by surgical treatment. The study indicates that there was significant proportion of epilepsy patients who may potentially benefit from surgery in Bandung. The result can probably be generalized to other parts of Indonesia. Development of epilepsy surgery service should thus be given high priority in the country.

In Indonesia currently, epilepsy surgery is only performed in Semarang, Central Java.<sup>5</sup> For presurgical evaluation, there are currently around 7 hospitals in Indonesia that are equipped with 1.5 Tesla MR imaging facility. MR spectroscopy is available in one hospital, video-EEGs without long-term video monitoring service is available in 10 hospitals, SPECT is available in 12 hospitals, and CT Scan service is available in almost all cities. The main hardware for epilepsy surgery service is thus already available in a number of centres in the country.

Presurgical evaluation and epilepsy surgery should ideally be carried out in centres with

multidisciplinary team consisting of specialists in clinical neurology, clinical neurophysiology, neurosurgery, paediatric neurology, psychiatry, neuropsychology as well as social work and nursing.<sup>6</sup> Training of these specialists in epilepsy surgery is essential before commencement of epilepsy surgery service. As the subsidies from government to patient is limited, high cost of presurgical evaluation and surgery is another challenge to development of epilepsy surgery services in Indonesia.

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