The First ASEAN Epilepsy Conference was held in Singapore on 14, December 1996. Abstracts of the lectures, symposiums and free papers were as follows:

Lectures:

1. How to conduct an epidemiologic study of epilepsy in developing countries

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Epidemiologic aspects of epilepsy in developing countries have not been studied adequately because of the many formidable problems which investigations of this type entail. The chief difficulties are that accurate or recurrent census data may not be available, and the number of physicians with expertise in clinical neurology may be limited. Most of the earlier studies derived information from hospital-based data, which made extrapolation to the general population highly conjectural.

Epilepsy being a chronic disease, the number of patients accumulates with time, hence the prevalence tends to be high even if the incidence is low. Therefore, meaningful studies can be made on smaller populations than are necessary for incidence studies. Moreover, prevalence can be studied in a cross-sectional survey. A practical, yet strict definition of the disorder is of utmost importance. The WHO Neurosciences Program defines epilepsy as two or more afebrile seizures unrelated to acute metabolic disorders or to withdrawal of drugs or alcohol.

Epilepsy can be “active” or “inactive”, depending on the time the last seizure and whether the person is on medication or not. Community surveys, in general, adopt a two-phased design, the first consisting of screening interviews by field workers and the second phase of medical evaluation by neurologists. The successful case finding depends on the screening questionnaire, and how it is administered. A common problem is the under-reporting. Because of the stigma, patients and their families tend to hide information. Minor seizures such as absences and partial seizures may be missed, as these may not be readily recognized as forms of epilepsy. In some communities, patients with epilepsy may be expelled from their homes as outcasts, hence not become available for case ascertainment.

In a house-to-house study conducted in the District of Kandy in Sri Lanka, trained health workers surveyed 218 villages with a population of 100,510. Among 80,408 people, 690 “definite” cases of epilepsy and 143 “doubtful” cases were identified giving an estimated prevalence of 9.02/1000. Such epidemiologic investigations provide data needed to appraise the magnitude of the problem, thereby allowing for more effective health care planning. Research approaches can also be designed to identify risk factors, offering a rational basis on which to design programs for control and prevention.

2. Etiologies of temporal lobe epilepsy

Norman K SO

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Temporal lobe epilepsy (TLE) is heterogeneous both in etiology and topography. Patients selected based on medical or surgical treatment cannot be strictly compared. 160 actively followed patients with TLE were identified in 1995 at our program that has offered both medical and surgical treatment since 1982. Seizures usually start early in life, but can present from the first to seventh decade. Major etiologic risk factors include: febrile seizures (12.5%), tumors (11%), cerebral infections (9%), head trauma (7.5%), perinatal complications (7%), and arteriovenous malformations (4%). Febrile or early infantile convulsions appear to be associated with mesial temporal epilepsy, although the mechanism of injury remains unclear. Lesions can be located in any part of the temporal lobe. A subgroup of patients with no other established etiologic factor has a family history of TLE, and a relatively benign course, supporting the concept of familial temporal lobe epilepsy. 20% to 30% of patient with TLE have one or more indices of bilateral disease. A history of febrile seizures is correlated with unilateral disease, while a history of encephalitis or perinatal complications predict bilateral disease. Secondary epileptogenesis may explain the presence of mirror foci but examples of independent seizures are rare.

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3. Digital EEG in Clinical Practice

Peter KH WONG

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Digital EEG as a diagnostic instrument has been shown to be simple, cost-effective and time-saving, in addition to offering capabilities for clinical diagnosis and research far beyond those currently possible with analog equipment.

As more practising physicians have access to digital technology, they will already have the basic skills required. Such technology will greatly expand the diagnostic application of EEG by the ability to re-display or reformat the same tracing with different gain, filter, time-base parameters. It is likely that crucial diagnostic procedures that can only be performed by computer-assisted EEG will become routine, just as computer-assisted neuroimaging has become routine. Thus, digital EEG is regarded not just as a convenient option, but as the current accepted standard of practice. Consequently, all clinical neurophysiologists will eventually be required to understand and apply the principles of digital EEG.

There is clear clinical advantages offered by digital EEG in routine setting, as well as in epilepsy, where the reformatting capability of digital EEG can be used to document different scalp locations involved in seizure onset and propagation.

4. Neuronal migration disorders

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Neuronal migration disorders (NMD) are characterized by deranged cortical development, maturation and organization. The commonest and often the only presentation of NMD is epilepsy.

Neuroblasts, generated in periventricular germinal centres, normally migrate in a radial and centrifugal fashion to the pial surface and future cortical plate. The majority of neuroblasts migrate between the 7th and 16th gestational weeks, but migration continues until the 5th postnatal month. Neuronal migration is probably controlled by several genes, and hitherto, at least two genetic loci have been implicated: one on chromosome 17p13.3 and the other, chromosome Xq28. Other than genetic mutations, environmental factors which cause insult to the brain prenatally may also lead to disordered neuronal migration; these include intrauterine infections, and maternal exposure to certain drugs and toxins. In general, the earlier the disordered migration, the more severe the resultant cortical malformation. In addition to epilepsy, patients with more severe malformation are more likely to be mentally retarded and show focal neurological signs. The mechanism of epilepsy in NMD is unknown, but is probably multifactorial; associated synaptic dysgenesis and neurotransmitter imbalance being the principal factors hypothesized. More recently, neurons which have failed to reach the cortical plate, have been shown to exhibit intrinsic epileptogenicity.

The morphological subtypes of NMD can be broadly classified into: 1) abnormalities of gyration (diffuse agyria, macrogyria (MG), polymicrogyria (PMG), MG/PMG associated with clefts & minor gyral abnormalities); 2) megalencephaly/hemimegalencephaly; 3) heterotropias (subependymal, subcortical or subarachnoid); 4) tuberous sclerosis; 5) focal cortical dysplasia/microdysgenesis; and 6) cortical dysgenesis (CD) associated with neoplasia (dysembryoplastic neuroepithelial tumour, CD associated with ganglioglioma, CD associated with low grade astrocytoma). There is now some evidence to suggest that some forms of hippocampal sclerosis may also be due to disordered neuronal migration. Except for microdysgenesis, the detection of these abnormalities are not visible on CT, and often, multiplanar reformatting of MR images is needed to delineate subtle gyral abnormalities.

Up until recently, there have been no EEG features peculiar to CD. Several studies have now shown that the finding of continuous or near-continuous epileptiform discharges on either scalp EEG or EEG is highly specific, and perhaps even sensitive (at least on EEG), for CD. Epileptiform abnormalities often extend beyond the anatomical boundaries of the NMD as defined on neuroimaging.

Patients with NMDs are often refractory to medical treatment. Although some authors report
favourable postoperative seizure outcomes, the majority of experts in this field, however, are of the opinion that NMDs are currently not amenable to epilepsy surgery. Further research is needed to define the “true” margins of the dysgenetic tissue associated with NMD. Nevertheless, the diagnosis of NMD has greatly reduced the number of cases diagnosed as cryptogenic epilepsy.

5. Epileptic auras

Norman K SO

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Auras are simple partial seizures, and must be distinguished from nonspecific prodromes and premonitions. The initial sensation of an aura is related to the first functional brain area activated by the seizure that has access to consciousness; but this may not be the site of seizure origin. Aura sensations can occur in sequence, or multiple sensations can arise simultaneously. Auras have localizing value: abdominal or psychic aura are most common in temporal lobe epilepsy, and visual aura are most common in occipital epilepsy. Somatosensory aura can arise from a number of brain regions, while frontal lobe epilepsy frequently shows no aura. Somatosensory and visual auras can further provide lateralizing information. Unusual auras include ictal headache, pain, forced thinking, and sexual arousal. The scalp EEG during auras is frequently unrevealing, and even depth electrode recordings only show ictal changes in about half of isolated auras. Isolated auras persisted in 20 to 35% of patients who are otherwise seizure free after epilepsy surgery. Patients with postoperative auras have an increased risk of complex partial seizures, and reduced quality of life on self-assessment.

Symposiums

Symposium 1: Epilepsy care and anti-epileptic drug usage pattern in ASEAN countries

2. Anti-epileptic drug usage pattern in Surabaya

Margono IMAM SJAHIR

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Surabaya is the capital of East Java Province. It has a population of 3.5 million. Based on the estimated prevalence rate of 0.5% active epilepsy in a population, there are an estimated 17,500 active epileptics in Surabaya. The patients are cared for by the general physicians, neurologists and paediatricians. This study aims to determine the practice of anti-epileptic drug (AED) usage among the doctors in Surabaya. 33 each of general physicians, neurologists and paediatricians from Surabaya and its surrounding area were approached to complete a questionnaire on their practice of AED usage. 21 general physicians (64%), 22 neurologists (67%) and 13 paediatricians (39%) completed the questionnaire sufficiently for their answers to be evaluated in this study. 80.4% of the respondents would commence AED when there were >1 seizure per year; 78.6% made diagnosis of epilepsy based on clinical history and EEG; 71.4% used phenytoin for treatment of grandmal epilepsy, 58.8% used carbamazepine for treat of partial seizure and 55.4% used clonazepam for treatment of petit mal epilepsy. Generic AED were used by general physicians (47.4%), neurologists (26.3%) and paediatricians (26.3%). The use of generic AED was based on its lower cost in 73.7% instances.
3. Care of epilepsy in West Java

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Epilepsy care in West Java is complicated by the dual problems of grave misconception about epilepsy amongst the general public and limited facilities for diagnosis and treatment. West Java Province has a population of 38 millions served by 20 neurologists and 100 pediatricians, 2/3 of these specialists reside in Bandung, the capital. The government health service consists of more than a thousand rural health centre and twenty district hospitals. Six of these district hospitals are served by neurologists and all have specialist pediatric services. The main referral centre is the Hasan Sadikin Hospital in Bandung which is the only government hospital with EEG and CT scan facilities. The Indonesian Society Against Epilepsy complements the Government health service with education, both for the medical profession (doctors & nurses) and the lay public (patients, care givers, teachers, government officials). For these purposes, periodic epilepsy symposiums were held. The other difficulty in patient care is that most of the populations are not covered by health insurance, and many are too poor to afford the appropriate anti-epileptic drug.

4. Anti-epileptic drug usage pattern in the Philippines

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Studies on pattern of anti-epileptic drug (AED) utilization in the Philippines are limited to hospital based data and prescription information provided by Intercontinental Medical Statistics (IMS) figures.

Four years IMS prescription data on AED utilization showed that phenobarbital is the most commonly used (48%) followed by hydantoin (25.3%), carbamazepine (20%), valproic acid (4%) and clonazepam (3%). New AED is introduced in the market in 1995 are gabapentin and lamotrigine which are mainly used as “add-on” medicines.

Total AED prescriptions by age distribution showed that ages 5-39 years utilize these drugs more often. General practitioners are the most common prescribers (61%), followed by general pediatricians (16.5%), neurologists (16.5%) and internists (5.33%).

There is no data on specific AED used for different seizures types. Some hospital based data showed that carbamazepine and valproic acid are the most common “add-on” drugs but newer AED like gabapentin and lamotrigine are beginning to be utilized more often.

Traditional medicines are not known to be used as primary mode of treatment among epilepsy patients.

5. Epidemiology of epilepsy in Singapore

K Puvandendran

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Though epilepsy is recognized as a major medical and social problem in Singapore, there is no epidemiological survey to realize the size of the problem. We studied this problem from data collected from hospitals, School Health Clinics and from military statistics. The most accurate data for the prevalence was obtained in the army recruits. The estimated life time prevalence of epilepsy based on these datas is 3.8 per 1,000 population.
6. Anti-epileptic drug usage pattern in Children in Thailand

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Ramathibodi Hospital is a general hospital located in the center of Bangkok city. From December 1981 to November 1982, 694 out of 37,864 patients (1.8%) aged under 15 years old seen at the outpatient clinic and the emergency room of the Hospital were due to seizures. Among the seizure cases, 355 patients (51%) were new cases for the Hospital. 75 patients (21%) of these new cases were symptomatic. The underlying causes of these symptomatic cases were: infections of CNS, metabolic derangements, surgically treatable lesions, birth trauma and others in 53, 14, 10, 7 and 16 percent respectively. Most of these patients did not require long term anticonvulsants. One hundred and forty one patients (40%) were epileptics. The seizures were generalized in 80%, and partial in 20%. Most patients who had generalized tonic-clonic seizures and partial seizures received monotherapy with phenobarbital (110/141=78%). No further seizures was observed within one year of follow up in 66%, decreased seizure frequency in 24% and no improvement in 10%. Phenytoin was used as monotherapy or in combination with phenobarbital in 16/141 (11%) and sodium valproate in 13/141 (9%). Side effects from the treatment with phenobarbital were observed in 35%. The main side effects included behavior changes and skin rash in 4.4%.

In the recent years, there is increasing trend towards greater use of newer anticonvulsants. For febrile convulsion, there is increasing use of valproate. However, at present, most patients with febrile seizures are treated with intermittent oral diazepam prophylaxis. Presently, over 30% of patients with primary generalized epilepsy are treated with sodium valproate as monotherapy, and in combination with other anti-convulsants in over 30%. In partial seizures, about 50% of the patients is treated with phenobarbital. Carbamazepine, phenytoin or sodium valproate are used as monotherapy or in combinations in the other 50%.

7. Care of epilepsy in Vietnam

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In Vietnam, care of epilepsy is closely related to the development of Neurology. Before 1954, neurology as a medical specialty did not exist, epileptic patients were then treated by medical doctors as well as traditional healers. Neurology was set up with the formation of the Neuro-psychiatry Department in Hanoi in December 1956. Seizures were then treated with bromides, phenobarbital or phenytoin. Cerebral tumor, abscess or cerebrovascular malformation which might be the cause of epilepsy were treated neurosurgically.

Neurology and Psychiatry were separated in 1969. By that time, there was the country’s first 16-channel EEG machine. ILAE classification of epilepsy was translated into Vietnamese in 1970. Emphasis was then given to viral encephalitis as a common cause of seizures. Before 1982, the prevalence of epilepsy was estimated to be about 2% of the general population. Later, several studies on epilepsy were carried out by psychiatrists and neuro-psychiatrists. Lack of standardized definitions and diagnostic criterias, differences in methods of case ascertainment, diagnostic accuracy and seizure classification impede meaningful comparisons. However, clinical studies revealed that 8.9% of all neurologic patients admitted into the Neurology service of the Bach Mai University Centre from 1990 to 1994 were suffering from epilepsy. 59.9% of them were male and 40.1% were female; 64.5% were children.

During the last 15 years, although a large network of provincial departments of neurology has been setup, care of epilepsy is still largely by psychiatrists in most regions. Since 1994, the number of AED available in Vietnam has increased dramatically, however, many patients are unable to afford some of these more expensive anticonvulsants. Thus, better diagnosis and management of epilepsy remains a major goal of Vietnamese neurology.
Symposium 2: Management of medically intractable epilepsy

1. Management of medically intractable epilepsy in Thailand

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Before consideration of the surgical intervention in the present context, there are several basic steps in a standard protocol for a group of patients with a so-called "intractable epilepsy". The following questions must be answered and critically evaluated: 1. Is this patient really a case of the intractable epilepsy or just a pseudoseizure? 2. Are there any persistent triggering causes such as mental and physical stress? 3. Has this patient gone through a mono-drug therapy with both the first-line and then the second-line antiepileptic drugs? 4. Have those drug levels been monitored and also being raised to the optimal therapeutic level for that particular subject which may be above the upper limit of the generally recommended therapeutic range in some cases? 5. Has multiple drug treatment been adequately tried in this patient? After the above questions have been cleared, a full format of pre-surgical evaluation will be employed — hospital admission with continuous video-EEG monitoring, recording of serial drug levels, and finally the psychological assessment.

2. Selection of epilepsy surgery candidates in Singapore

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Resection of epileptogenic zone (EZ) is a treatment option in Singapore for patients who have medically intractable focal epilepsy. Patients are considered medically intractable, when acceptable seizure control cannot be achieved, despite adequate trials (include combination therapy) with available, affordable and potentially effective anti-epileptic drugs (AEDs) (include use of newer AEDs), at doses or levels that are associated with no or acceptable side effects. What actually regarded as acceptable seizure control, unacceptable toxicity, and adequate trials with AEDs are debatable. These obviously differ from patient to patient. The impact of repeated seizures and/or medication side effects on the quality of life is more important than the absolute seizure frequency when determining medical intractability. The likelihood of complete seizure control by medications is rather low if patients are still uncontrolled after 2-3 years of adequate therapeutic trials. For better long-term psychosocial prognosis, epilepsy surgery should be performed early, preferably before patient’s studies and/or careers are affected.

Potentially good candidates for resective surgery are patients with mesial temporal lobe epilepsy or discrete structural lesion in neocortex. These patients can benefit from temporal lobectomy or lesionectomy, respectively. They are identified through detailed history taking (paying particular attention to presence of aura, automatism, dystonic posturing and version), digital EEG recording (to look for presence of anterior temporal sharp waves and dipole pattern), and MRI study using appropriate sequences. Once identified and proven to be compliant to AEDs treatment, these patients will be scheduled for inpatient video/EEG monitoring to record habitual seizures and exclude nonepileptic events. Localisation and/or lateralisation of EZ are based on interictal & ictal findings, and analysis of seizure semiology. Peri-ictal SPECT is performed (only during office hours) to give independent lateralizing information. Once EZ is determined with reasonable certainty, patients are scheduled for intracarotid amobarbital procedure, psychiatric assessment and neuropsychological testing. When EEG and non-EEG data are concordant, patients will proceed to temporal lobectomy or lesionectomy. When location and extent of EZ could not be determined, or when EEG & non-EEG data are discordant, intracranial EEG recording (depth and subdural) are used before deciding surgical treatment.
3. Development of epilepsy surgery programme in Taiwan

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The first Epilepsy Surgery Program in Taiwan was established at the Neurological Institute, Veterans General Hospital, Taipei in August 1987. Until July 1996, 123 temporal lobectomies, 7 extratemporal resections, 3 corpus callosotomies and 1 hemispherectomy in adult patients were done. The protocol of phase I presurgical evaluation consists of: 1. Detailed history and neurological examination. 2. Serum anticonvulsant level. 3. Serial EEGs using scalp, nasopharyngeal and sphenoidal electrodes. 4. Documentation of at least three habitual seizures by long-term EEG/video monitoring with cable or radio telemetry. 5. Neuroimaging studies including computed tomography (CT) and magnetic resonance imaging (MRI) of brain. 6. Single photon emission computed tomography (SPECT) and positron emission tomography (PET). 7. Neuropsychological assessment. 8. Intracarotid sodium amobarbital test (Wada test). In addition to above studies, proton magnetic resonance spectroscopy (MRS) was performed in 15 patients and selective posterior cerebral artery amobarbital test (PCA Wada test) was performed in 7 patients. After phase I study, those patients with uncertain location of the epileptogenic foci undergoes phase II study, which consists of: 1. Foramen ovale electrode and 2. subdural grid electrode implantation. Subdural grids implantation with intraoperative localization of the sensorimotor cortex by evoked potentials and subsequent seizure recording and functional mapping were performed in those patients with extratemporal lobe seizures.

Among 98 adult anterior temporal lobectomies done with follow up of more than 12 months, 79 patients (81%) remained seizure-free (class I). Ten patients (10%) have less than 3 attacks of seizure per year (class II). Seven patients (7%) have worthwhile improvement (class III) and 2 patients (2%) have no improvement.

Symposium 3: Social and economic aspect of epilepsy

1. Sociomedical aspect of epilepsy in Indonesia

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A six month study (March-September 1994) on 100 epileptic patients was carried out through questionnaire, interview and evaluation of epileptic charts. 57 of the patients were from an urban outpatient clinic (RSCM) and the others were from a semi-rural epilepsy clinic (Perpei).

The main findings of the study were: most patients from the semi-rural area were from the lower socio-economic class and was less educated than those from the urban region. The use of traditional treatment such as consultation with dukun-witch doctor and other alternative treatments was more prevalent among the patients from the semi-rural clinic, as well as problems related to stigma.

Phenobarbital remains the most widely used oral anticonvulsant in Indonesia because of its low cost, and it is the only anticonvulsant recommended by the Ministry of Health. There is no complication from the use of phenobarbitone in the offsprings of patients in this study.

2. Epilepsy treatment gap in Sabah and Kuala Lipis, Malaysia

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Treatment gap is the percentage of persons with active epilepsy who at any one time are not receiving anticonvulsant treatment. The estimated treatment gap in the developing countries is up to 95% in some areas. The aim of the study is to assess its occurrence in rural Malaysia.
Sabah is a predominantly rural state in East Malaysia. The population for 1995 was 2.1 million, with a large non-Malaysian population of 24.6%. The racial breakdown was: Kadazan/Dusun (24.2%), Bajau (15.9%), Chinese (14.9%), Malays (9.1%), Muruts (3.9%), other Bumiputra (19.7%), others (12.3%). Based on anticonvulsant drugs consumed in 1995, there were 1,049 patients receiving treatment for epilepsy. With the estimated prevalence rate of 0.5% active epilepsy in the population, the epilepsy treatment gap for Sabah was 90%. The anticonvulsant used were: Phenytin (29%), Carbamazepine (24%), Phenobarbitone (24%), Sodium Valproate (23%).

Kuala Lipis is a rural district of Pahang about 200 Km east of Kuala Lumpur. It has a population of 72,000. The racial breakdown in 1995 was: Malay including Orang Asli (75%), Chinese (17%), Indian (7%). It is served by a government district hospital, 6 government health clinics and 6 private general practitioners. A survey from these medical clinics in 1996 identified 27 patients with epilepsy on anticonvulsant treatment. This suggests an epilepsy treatment gap for Kuala Lipis at >90%. The supply of anticonvulsants from the Kuala Lipis District Integrated Pharmaceutical Store is consistent with this findings.

Based on anticonvulsant consumption, the treatment gap for Malaysia is estimated to be 68%. The treatment gap in Sabah and Kuala Lipis is much higher at 90%. This indicates a higher epilepsy treatment gap in rural areas of the country. The Malaysian Government runs a heavily subsidized health care system where all the commonly used anticonvulsants are supplied at minimal cost. In most parts of the country, the rural population has easy access to health clinics where the all the commonly used anticonvulsants are available. The high treatment gap suggests the social-cultural factors play a dominant role in the lack of acceptance of epilepsy treatment in rural Malaysia.

3. Economic aspects of epilepsy in Surabaya

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Based on experience of patient care in Surabaya, the economic burden of epilepsy may be divided into medical and non-medical expenses as follows:


- Non-medical Expenses: i. Transport (US$16), ii. Loss of school days (US$10), iii. Loss of work (US$10), IV. Mortality losses (US$120,000).

The economic burden can be reduced by reducing the cost of treatment; effective control of seizure to reduce time off work and minimize the hospitalisation cost, ensure no disruption in education so that the patient can acquire the necessary work skill and productivity; prevention of accident and premature death.

4. Cost of drug and surgical treatment for medically refractory epilepsy in Singapore

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In Singapore, new anti-epileptic drugs (AED) and surgery are available for patients whose seizures are not satisfactorily controlled by conventional AEDs. Treatment cost is an important factor in deciding subsequent management. Conventional AEDs and surgery can be subsidized by government whereas new AEDs are not. Surgical expenses can also be covered by medical insurance.

The pattern of AED usage on 236 epilepsy out-patients seen in a tertiary referral hospital between June and November 1995 was used to estimate the cost of drug treatment. Cost of surgery included cost for Magnetic Resonance Imaging study, inpatient video/EEG monitoring, intracarotid amobarbital procedure and temporal lobectomy (the commonest epilepsy surgery). All costs are calculated in Singapore dollars.

For monotherapy, the estimated average cost per patient would be $270/year (range: $130-$450). For 2-drug combination without new AED, $570/year (range: $180-$780), and with new AED, $2000/year (range: $500-$2800). For 3 or more drugs combination with the use of new AED,
>$4000/year. The average cost for epilepsy evaluation with surgery would be $15,000 for which there is an approximately 2/3 government subsidy.

In Singapore, it is less costly for suitable surgical candidates to have epilepsy surgery than to be prescribed long-term new AEDs.

**Symposium 4: Role of regional and national epilepsy organization**

**1. Role and function of the Asian and Oceanian Epilepsy Organization**

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Some colleagues from Asian and Oceanian countries were invited to participate in the 25th Annual Meeting of the Japan Epilepsy Society at Shizuoka, Japan, in 1991. Following the discussion, the formation of Asian and Oceanian Epilepsy Organization (AOEO) as an International League Against Epilepsy (ILAE)-oriented organization was suggested. The Inaugural Congress of the AOEO held in Seoul, Korea, in September, 1996, was an epoch-making landmark of the organization. Following completion of the Congress, the Management Commission of the ILAE decided to constitute a Commission on Asian and Oceanian Affairs in part similar to the dual structure of the regional league in Europe, Commission on European Affairs and European Advisory Council both founded in 1994. The former has been functioning as an executive while the latter for generating plans/ideas. “The objectives of the Commission would be: to encourage the development of new chapters of the ILAE in the Asian and Oceanian region, and to advise the ILAE Executive on a structure for regional cooperation in the field of epilepsy within the region, and to develop regional cooperation” (E.H. Reynolds’s letter to M. Seino of 23rd September, 1996). The notable difference in our circumstances compared to those in Europe is the fact that, in the Asian and Oceanian region, only a few countries have constituted ILAE chapters despite the fact that there exists not a few professional persons in the individual countries actively involved in the problems of epilepsy. Therefore, it will be of the utmost importance to promote the formation of ILAE chapters in those countries where one does not already exist. Constitutional issues that may hinder achieving the above goal should be overcome.

**2. Activities of the Indonesian Society Against Epilepsy**

Mahar MARDJONO

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The Indonesian Society Against Epilepsy was founded in 1982. It has a central board located in Jakarta and 14 branches all over Indonesia, one in each capital city of 14 provinces. Under the “Disease Control Program in Epilepsy” in cooperation with Ciba-Geigy Pharma Indonesia Ltd. since 1990, the Indonesian Society Against Epilepsy has carried out the following activities:

1. Information about epilepsy for the general public, including teachers, government and police officers. These were done through lectures, seminars or symposium; as well as via mass media such as TV, radio, newspapers, magazines, movies, leaflets, booklets, posters and advertisements. The seminars, symposium and lectures were held 23 times in 16 cities. These were attended by 5800 participants.

2. Training of general practitioners and paramedic personnel in the management of epilepsy through courses, symposiums, workshops and round table discussions. These were carried out 76 times in 31 cities for a total of 6,000 participants.

3. Establishment of 4 epilepsy clinics (2 in Jakarta, 1 in Surabaya, 1 in Semarang) for patients of lower income group.

4. An epidemiological study of epilepsy is being conducted at present in Jakarta and in cooperation with the Department of Health, Indonesia.

5. Several booklets on epilepsy have been published or translated into Indonesian. These are for example, “Guidelines for woman with epilepsy in child-bearing age” and Professor S Shorvon’s book on “Epilepsy”.

6. In 1992, the Epilepsy Foundation was established for fund raising.
3. Malaysian Society for Epilepsy

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The Malaysian Society for Epilepsy was established in 1988 with the following objectives: 1. To promote scientific study and research in epilepsy. 2. To disseminate knowledge concerning epilepsy to professionals and the general public. 3. To advise those living with epilepsy in bringing up children with epilepsy through support groups, literature and workshop. 4. To establish a register of people with epilepsy in Malaysia. 5. To liaise with international organizations interested in the study, treatment and care of people with epilepsy.

There are now 148 members, 10 medical doctors and the rest patients or their care-givers and the interested general public. The original committee consisted largely of doctors but presently only 3 out of 8 committee members are medical doctors. The society holds a public lecture during the annual general meeting. A parent support group meets every 3 months. Since last year, a quarterly newsletter in English and Malay has been published with circulation of 200. An epilepsy diary and other pamphlets in English, Malay, Chinese and Tamil have also been published. Other than Kuala Lumpur, there is also an inactive branch of the society in the northeastern city of Kota Baru.

Initially the society was largely dependent on the pharmaceutical industry for financial support. In 1995, a Treasure Hunt for Epilepsy was organized in Kuala Lumpur and the revenues have made the Society more self sufficient.

4. Singapore Epilepsy Foundation

Fook-Hong LEE

Singapore Epilepsy Foundation, Singapore

The Singapore Epilepsy Foundation (SEF) was established in 1994 as a non-profit, charitable organization dedicated to improving the quality of life of people affected by epilepsy in Singapore. The aims of the Foundation are as follows: 1. To educate patients, care givers and lay-persons regarding the nature and treatment of epilepsy. 2. To enhance access to information about epilepsy including setting up a resource centre. 3. To assist with employment opportunities for people with epilepsy. 4. To coordinate and work with relevant authorities and agencies to improves services for people with epilepsy and family members. 5. To support other activities beneficial to people with epilepsy, including research.

Since its formation, the Foundation has organized public forums and 3-monthly support group meetings. It has also published 4-monthly newsletter which serves as an education material and provides a platform for people to share their epilepsy experiences. The membership is open to all people affected by epilepsy well wishers, volunteers and professionals. It currently has about 150 members of which 90% are people with epilepsy or family members. Some members are medical professionals serving as medical advisors, and other professionals serving as consultants in various capacities.

Free papers

1. Seizures in patients with systemic lupus erythematosus

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This was a combined retrospective and prospective study on systemic lupus erythematosus patients with seizures treated in the University of Malaya Medical Centre, Kuala Lumpur, Malaysia, from 1975 to 1995. The aim of this study was to characterize the behaviors of seizures seen in patients with lupus in order to identify clinical and laboratory indicators which may help in the clinical management.
A total of 58 patients were studied. The results showed that seizures were usually due to CNS lupus (89%) rather than systemic involvement or secondary complication of the disease. The seizures usually occur in the setting of active lupus disease (93%). In 24% of cases, it occurred during the initial presentation of SLE. 59% of the patients had other neuropsychiatric manifestations preceding or following the onset of seizure. Generalized seizure was the most common type of seizure seen and was typically followed by an unusually prolonged period of clouding of consciousness; 69% of the patients took more than 24 hours to regain full consciousness. Status epilepticus was common (21%). EEG was abnormal in 92%, the most common abnormality was nonspecific generalized slow waves (76%). 50% of the patients showed cerebral atrophy in the CT scan. CSF was abnormal in 59% with raised protein as the most common finding. The mortality within 2 months of the onset of seizure was high at 26%. However, only 24% of the patients continued to have recurrent seizures during follow up.

In conclusion, seizures in SLE usually reflects CNS lupus. Status epilepsy is common and the mortality is high. The lupus as well as seizure should thus be treated aggressively. Long term anticonvulsant is not required in most patients.

2. Etiology of intractable focal epilepsy in Malaysia by clinical electroencephalogram and magnetic resonance imaging

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The aim of this study was to investigate the etiology of intractable partial seizures in a Malaysian Neurological Centre by magnetic resonance imaging (MRI). Patients from the adult neurology clinic who had intractable partial epilepsy were evaluated prospectively since mid-1995. Partial seizure was defined by seizure symptoms or focal sharp waves on interictal EEG. Intractability was defined as having >1 seizure a month for >2 years. All patients underwent examination from the 1.5 T MRI. Axial and sagittal T1 weighted and oblique coronal T1 and T2-weighted images were obtained. The MRI were read by a radiologist blinded to the clinical data. In some patients coronal SPGR sequences were obtained. All patients had normal cranial CT.

A total of 23 patients were evaluated. The average age was 27.1 years (SD 8.9) and the range was 15-45 years. The female-male ratio was 13:10. The mean duration of epilepsy was 13.3 years (SD 5.3) with a range of 5-24 years. All patients had a mixture of complex partial seizures and secondarily generalized seizures. The MRI examination showed that ten patients (43.5%) had unilateral hippocampal atrophy. One (4.3%) had an enlarged falx with adjacent migrational disorder. Ten patients (52.1%) were normal.

In conclusion, 44% of patients with drug resistant partial epilepsy has mesial temporal sclerosis demonstrable by 1.5T MRI. Mesial temporal sclerosis is thus an important cause of drug resistant epilepsy in Malaysia. Development of surgical treatment of epilepsy should take high priority in the overall epilepsy care in this country.

3. Admissions to a paediatric intensive care unit for convulsive status epilepticus: a 3-year survey

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The objectives of this study were to study the etiology, clinical features and outcome of convulsive status epilepticus (SE) admitted to the pediatric intensive care unit (PICU), Tan Tock Seng Hospital, Singapore. The study involved a retrospective review of 33 children admitted to the PICU from 1993-95 with a diagnosis of convulsive SE.

Over 3 years study period, convulsive SE accounted for 8% of the total PICU admissions. The 33 children with convulsive SE had a mean age of 41.9 months. The mean duration of SE before admission was 70 minutes. 76% of the episodes of SE were generalized, 15% were focal and 9% were mixed in nature. Common etiologies noted were complex febrile seizures (12), epilepsy (10),
meningitis/encephalitis (5), intracranial hemorrhage (2) and metabolic disorders (2). 21 patients (64%) were neurologically normal prior to SE. SE was the first episode of seizure in 24 patients (73%), including all the 12 patients with complex febrile seizures and 2 with epilepsy. 4 patients (12%) died during the PICU stay. The cause of death were meningitis/encephalitis (2) and pneumonia (2). Out of 25 patients being followed-up, 8 patients (32%) had chronic sequelae, i.e. epilepsy (8), motor and cognitive impairment (7) and visual impairment (2). 5 of 13 patients (46%) with SE not related to febrile seizures had sequelae compared to 2 of 12 patients (17%) with SE due to febrile seizures. Recurrent SE occurred in 2 patients with epilepsy on follow-up.

In conclusion, generalized seizures were the most common convulsive SE. 67% of SE were due to complex febrile seizures or epilepsy. The mortality rate overall was high at 12%. Chronic sequelae were noted in 32%. Risks of chronic sequelae were related to underlying etiologies. Patients with complex febrile seizures who were neurologically normal prior to SE had a favourable outcome.

4. Epilepsy with developmental malformation in children in Klang, Malaysia

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It is said that developmental malformations (DM) of the brain tends to be associated with malignant epilepsy syndrome of early infancy. This is a retrospective study of epileptic children with DM seen in the Paediatric Department, Klang General Hospital, Selangor, Malaysia.

The Klang General Hospital is a 811 bed public hospital serving the western Selangor State. The State has a total population of 2.7 million (1995). The paediatric department has 120 beds. EEG was done in all children with epilepsy and CT scan performed in most patients. During the 7 month period from June 1994 to January 1995, 19 children with epilepsy and DM were seen. The racial breakdown was: Malay (12), Indian (5), Chinese (2). The hospital racial breakdown is Malay (55%), Indian (30%), Chinese (5%), Others (10%). The sex ratio was Male: Female = 14:5. The mean age of onset of epilepsy was 9.7 months, the range was from day one to 3 years. 12 of the cases had onset of seizure <6 months. 17 had uncomplicated pregnancies, each had a history of placenta previa and polyhydramnios. None of the patients had a similar family history, nor a history of consanguinity. Microcephaly was seen in 12 patients, dysmorphic facies in 7 and macrocephaly in 6 patients. The clinical seizure patterns were: generalized tonic clonic (63%), myoclonic (32%), generalized tonic (26%), subtle seizure/apnoea/cyanosis (21%), focal motor (16%) and atonic (11%). Status epilepsy was seen in 21% of the patients. The seizure frequency was daily in 58%, weekly or monthly (11%), few in a year (31%). Neurological status were: developmental delay/mental retardation (100%), cerebral palsy (84%), blindness/poor vision (50%). EEG abnormalities were: asymmetrical background (93%), bilateral synchronous or multifocal discharges (35%), focal or unilateral discharges (43%). CT/MRI findings were: disorder of diverticulation/cleavage: absent septum pellucidum (3), Dandy-Walker malformation (4); disorder of neuronal proliferation: hemimegalencephaly (2), Sturge-Weber Syndrome (1), harramota (1); disorder of migration and sulcation: agenesis of corpus callosum (6), schizencephaly/clefts associated with polymicrogyria (3); destructive/encephaloclastic disorder: hydrancephaly (2), porencephaly (2); unclassified: arachnoid cyst (3). The mortality during the study period was 11%. Over the same period, there were 31 children with recent onset epilepsy (<6 months) seen in the department.

This retrospective study confirms the malignant nature of epilepsy associated with developmental defects. This study suggests that there may be high prevalence of developmental malformation in Klang.

5. A five year study of childhood epilepsy in University Sains Malaysia Hospital, Kelantan, Malaysia

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This is a retrospective, descriptive study of 194 children diagnosed to have childhood epilepsy from 1990 to 1995 in Universiti Sains Malaysia Hospital. The Hospital is the referral centre for the rural
north eastern states of Kelantan and Trengganu. The study was designed to identify factors peculiar to children with epilepsy in this area. Of the 194 children with epilepsy, 91 patients (46.9%) were female and 103 (53.1%) were male. 18% were infants of <12 months, 39.7% were from the age 13 to 60 months and 42.3% were from the age of 61 to 144 months. The classification of epilepsy was: generalized (40.7%), partial (25.8%), unclassified (33.5%). A positive history of consanguinity was seen in 6.7% of the patient while a family history of epilepsy and mental retardation was noted in 8.8% and 4.1% respectively. Data on aetiological aetiological factors indicate that birth asphyxia, serious neonatal problems and past history of neurological abnormalities such as meningitis, encephalitis and brain abscesses were only noted in <10%. However, a past history of febrile convulsions were seen in 34.5%.

There was a high rate of defaulters (59.2%) despite availability of all common anticonvulsants at heavily subsidized cost. The incidence of admission for status epilepticus (11.4%) is also higher than other reported series. In addition, 20% of these children were not receiving any form of formal schooling although primary education is free in Malaysia.

This study indicates that greater socio-cultural emphasis is needed in the management of epilepsy in the rural Malaysia.

6. Image-guided, computer-assisted epilepsy surgery

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Image-guided epilepsy surgery refers to sophisticated computer techniques using frameless stereotaxis and 3D reconstructions of anatomical structures such as the amygdala-hippocampal complex to guide the neurosurgeon during epilepsy surgery. Out of a personal series of 136 temporal lobeectomies, 35 patients had surgery guided by these techniques. Other procedures included 3 corpus callostomies, and 41 lesionectomies. Improved access, reduced morbidity and more complete lesional and non-lesional resections were obtained with these new techniques.

7. Localisation of language areas during awake epilepsy surgery using laser doppler flowmetry

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This is a report of the novel intra-operative use of laser doppler flowmetry for identification of language areas during an awake epilepsy craniotomy. The patient was an epileptic 19 year old left-handed bilingual Chinese female fluent in English and Mandarin. Video-EEG monitoring showed right temporal ictal onset and hippocampal MRI scans showed right hippocampal atrophy. Wada test showed right hemisphere dominance and functional MRI showed strong right inferior frontal and temporal activation during silent naming in English but bilateral activation when she was tested for English and Chinese synonyms. She underwent a right anterior temporal lobectomy and amygdalohippocampectomy under local anaesthesia. Language mapping was done using an Ojemann Radionics Cortical Stimulator and the protocol was similar to that used in the University of Washington, Seattle. The Vasamedics Laser Doppler cerebral blood flow (CBF) monitor was used to detect cortical activation during language testing. During an overt naming task in English, the CBF increased 15% (52 vs 45 ml/100g/min) over Broca’s area, 13% over the posterior portion of the middle temporal gyrus, 8% (54 vs 50ml/100g/min) over the middle portion of the superior temporal gyrus, and 5% (57 vs 54/100g/min) over the posterior portion of the superior temporal gyrus. (There were also areas that showed a decrease in CBF during language testing). Some indirect correlation was also found between the intra-operative and fMRI findings.

Laser Doppler Flowmetry can thus be used easily and safely intraoperatively to detect subtle changes in CBF during language testing in an awake patient undergoing epilepsy surgery.