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Editorial

Recent Advances in Epilepsy

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Epidemiology

The prevalence of epilepsy is said to be about 3 to 9 per 1,000 population. Certain regions have reported high prevalence, this is particularly so for countries in Latin America and Africa. As for countries in Asia, the prevalence rate from published reports are: China (4.4), Japan (1.7), Parsis in India (4.7), Kashmir in India (2.47), Pakistan (9.85), Sri Lanka (9.0), and Guam (4.9). For the South East Asian countries, only Singapore has estimations of prevalence of the illness. Lee et al were able to identify 336 children with epilepsy among 101,257 life births from all government hospitals from 1980 – 2. The cumulative incidence of epilepsy for Singapore children by age 9 years is 3.50 per 1,000, which is similar to rates reported from elsewhere[1].

Based on a study of 30,754 children born in two public hospitals in Singapore, Lee et al estimated the cumulative incidence of febrile seizure by 6 years to be 4.47%; 5.14% in males, and 3% in females. This falls in the range of 2% – 5% reported elsewhere, but higher rates have been reported in Japan. There were no significant differences in rates between the three racial groups, Chinese, Malays and Indians[2]. For patients with childhood febrile seizures, Lee et al also estimated the cumulative risk for afebrile seizure 5 years later to be 1.5%, confirming the benign nature of the disease[2].

Epilepsy syndromes

Whereas the earlier classification of seizures differentiated mainly the partial from the generalised, the more recent classification by International League Against Epilepsy (ILAE) emphasised the epileptic syndromes[3]. An epileptic syndrome is characterised by a cluster of signs and symptoms customarily occurring together; these include type of seizure, aetiology, precipitating factors, age of onset, severity, diurnal variation and prognosis. One of the best known epileptic syndrome is childhood absence epilepsy (*petit mal epilepsy*). Another important epilepsy syndrome is *benign rolandic epilepsy* (benign partial epilepsy with centro-temporal spikes, BECTS). It may be up to four times more common than childhood absence epilepsy. The onset is at primary school age, with remission by adolescence. The seizures usually occur at sleep. The patients are neurologically and intellectually normal. Typical focal epileptic discharges are seen in the centro-temporal area in the EEG. The mode of inheritance is probably multifactorial. *Juvenile myoclonic epilepsy* (JME) is another important epilepsy syndrome. It is characterised by myoclonic jerks affecting mainly the upper limbs, usually occurring upon awakening, precipitated by sleep deprivation. The myoclonic jerks may be followed by generalised tonic-clonic convulsion. The onset of the symptom is during teenage years. The EEG shows generalised epileptic discharges. The seizures and myoclonic jerks respond specifically to sodium valproate, with relapses on drug withdrawal. Some families of JME are linked to chromosome 6p. In a Malaysian series on newly diagnosed epilepsy, JME accounted for 5.5% of the cases[4].

The new anti-epileptic drugs

About 60% of patients with newly diagnosed epilepsy can be satisfactorily controlled with one anti-epileptic drug (AED). However, in about 20% – 30% of cases, the seizures remain refractory despite the various standard drugs used in

combination. In recent years, there is a welcome addition of a large number of new AEDs in various stages of development. These include felbamate, gabapentin, lamotrigine, oxcarbamazepine, piracetam, remacedime, tiagabine, topiramate, vigabatrin and zonisamide. They are typically first tried as an add-on, then as a monotherapy. It will be some time before the exact clinical role of each of these drugs become more certain. As an add-on, they are able to effect a >50% reduction in seizure frequency in 10% – 40% of patients, with some patients achieving seizure-free status. Among the drugs, lamotrigine is effective in a broad spectrum of seizures, gabapentin is better tolerated, topiramate is apparently most effective and vigabatrin is particularly effective in West's syndrome from tuberous sclerosis[5]. Lim et al reported on the AED usage in the Singapore General Hospital, a tertiary referral hospital. 62.7% were on monotherapy. The drugs used were: carbamazepine (52%), valproic acid (24.3%) and phenytoin (22.3%). 18.2% were taking newer anticonvulsants (gabapentin, lamotrigine, vigabatrin) as add-ons[4].

Epilepsy surgery

There is tremendous advances in neuroimaging, clinical neurophysiology, surgical procedures, and general understanding of surgically remediable disorders that have vastly improved the safety and efficacy of surgical treatment of epilepsy in the past two decades. About half of patients with intractable complex partial seizure have *mesial temporal sclerosis* which can be demonstrated by magnetic resonance imaging (MRI). With surgical resection, 80% become seizure-free or substantially improved. Infants and young children with catastrophic seizures due to diffuse brain disturbances limited to one hemisphere, who already have hemiparesis and a useless hand, have a 70% chance of becoming seizure-free following hemispherectomy. Disabling drop attacks in older patients with secondary generalised epilepsy can be improved by corpus callosotomy.

The social-cultural factor

Epilepsy is an illness where how the society, family and patient view the illness can result in more disabilities than the actual seizures. Epileptics are generally prejudiced against by the public. Misunderstandings of the condition and prejudices against epileptics are widely prevalent in many societies. This results in shortened schooling, problems of unemployment, marriage, and social life. It also results in large treatment gap (percentage of patients not receiving AED) particularly in the rural areas of the developing world and patients spending large proportion of limited resources on non-conventional treatment measures which are of dubious value. Based on AED consumption, in spite of the availability of excellent rural health services, the treatment gap in rural Malaysia for epilepsy may be as high as 90%[4]. This is the reason for the launching of Global Campaign on behalf of people with epilepsy in 1997; a joint enterprise of the WHO, ILAE and International Bureau for Epilepsy. There is also a welcome growth in patient-based epilepsy association throughout the world in recent years.

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