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Epidemiology and management of epilepsy in Hong Kong: an overview

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Over half of the estimated 50 million people with epilepsy live in Asia, but there has been limited information on the epidemiology, aetiology and management of epilepsy from this region. In this article, we summarise some of the main problems faced by patients and the current treatment options available in an urban area of China.

Key words: epilepsy; antiepileptic drugs; temporal lobe resection; health care delivery.

INTRODUCTION

Hong Kong, with a population of 6.8 million, is an urban Chinese society with a long history of exposure to the West. Traditional beliefs in epilepsy coexist with a comprehensive modern health care system in the territory. Over 95% of epilepsy patients are managed in public health services, which are easily accessible and provide universal coverage for the local population at nominal charges. This article aims to give an overview of the existing knowledge of epilepsy in Hong Kong by reviewing selected studies published in both English and Chinese language journals between 1982 and 2002. The findings summarised may also have relevance to the understanding of the issues surrounding epilepsy in other major Chinese cities.

EPIDEMIOLOGY

No population-based prevalence studies have been published in Hong Kong. Based on the figures derived from studies conducted in other Chinese communities, where the prevalence is 3–7/1000, it is estimated that approximately 45 000 people in this city have active epilepsy.

The risk of recurrence after a first unprovoked and untreated generalised tonic–clonic convulsion was studied in 126 people[1]. The cumulative probability of a second attack at 1 and 2 years were 30 and 37%, respectively. Multivariate analysis showed that individuals with abnormal cranial computer tomography scans had an increased risk of recurrence.

CLINICAL CHARACTERISTICS

The syndromic classification and aetiologies of epilepsy in both adult and paediatric cohorts have been documented in several clinic-based surveys. The largest one conducted to date was the Hong Kong Epilepsy Registry which identified 2952 patients with active epilepsy above the age of 10 years from eight major public hospitals in 1997. The commonest aetiologies were cerebrovascular disease (26.2%), a history of central nervous system infection (26.0%), head trauma (11.4%), perinatal insults (9.7%), congenital brain malformations (7.4%), hippocampal sclerosis (5.9%) and intracranial neoplasms (5.6%)[2]. One fifth of patients had refractory epilepsy as defined by persistent seizures despite appropriate treatment with at least two antiepileptic drugs (AEDs). Learning disability was found in 14.1% and cerebral palsy in 2.1% of patients. These two figures were doubled in patients with refractory epilepsy.

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In a group of patients with refractory epilepsy undergoing pre-surgical evaluation, the most common pathology demonstrated by magnetic resonance imaging was mesial temporal sclerosis (41%), followed by neocortical sclerosis (32%), vascular malformations (10%), neuronal migration disorders (10%) and tumours (7%)[3].

PSYCHOSOCIAL IMPACT

Epilepsy imposes enormous psychological and social burdens on sufferers and their families. Despite much effort in public health education, epilepsy remains a stigmatised condition. In a recent study of 1128 members of the general public, 32.2% would not allow their children to marry epileptic individuals, 27.5% considered pregnancy to be inappropriate in sufferers and 22.5% of employers would terminate affected workers' employment contract[4]. The authors concluded that overall, public perception towards epilepsy patients is more positive in Hong Kong than those in Mainland China or Taiwan, but is still more negative than in Western societies. Indeed, in a separate study, 70% of patients attributed discrimination as the direct cause of difficulties with emotional, interpersonal, vocational and financial adjustment to epilepsy. Seventeen percent of the general public thought that mutton consumption during pregnancy would lead to epilepsy in the offspring, which is a peculiar belief among Chinese community[4].

MANAGEMENT

Pharmacological treatment

In the 1997 hospital survey, 57% patients were receiving monotherapy. The most commonly prescribed AEDs were the established agents: 39% patients were receiving phenytoin, 33% carbamazepine, 22% valproate and 11% phenobarbitone[2]. Of the newer drugs, gabapentin, lamotrigine, topiramate, vigabatrin and levetiracetam are available, for which various phase IV studies have been conducted to evaluate their use in the local population.

The differences in the pharmacokinetic profile of diazepam among Chinese and White healthy volunteers were examined by Kumana *et al*.[5]. Although mean peak diazepam concentration (C_{max}) was similar in both groups, mean diazepam apparent volumes of distribution were smaller and time to C_{max} was prolonged among the Chinese subjects. The authors attributed these differences to the greater body fat and stature in the White volunteer group. Woo *et al*. randomised patients who were seizure-free but with subtherapeutic serum AED levels to either continuing the same dosage, or increasing the dosage until the therapeutic range was reached[6]. It was found that dose increment did not lead to improvement in seizure control but produced more neurotoxic side effects, suggesting that increasing the dose in a well-stabilised patient may not be necessary.

Non-pharmacological treatment

Epilepsy surgery is performed in a few specialist centres in Hong Kong. A small series from one centre showed that 73% of patients with refractory epilepsy became seizure-free after temporal lobectomy[7]. No deaths or major postoperative complications occurred. Vagal nerve stimulation was first introduced in Hong Kong during the mid-1990s for patients with refractory partial-onset seizures who are not suitable for resective surgery. Its results are also comparable to those reported from overseas centres.

DISCUSSION

Dedicated efforts by local researchers over the past two decades have shown that the clinical characteristics of epilepsy patients in Hong Kong, such as seizure types and prognosis, as well as response to AED therapy and surgery, appear to be largely comparable to their Western counterparts. This finding is important for the valid extrapolation of results generated in Europe and North America to Chinese patients and *vice versa*. However, important differences, including pharmacokinetic profiles and disease attitude, have been observed between the two populations, highlighting the need for locally relevant studies. To provide essential information at the infrastructure level, a community-based prevalence and incidence study is currently underway in Hong Kong.

A growing number of gene mutations associated familial epilepsy syndromes have been identified. For the more common 'non-hereditary' cases, genetic polymorphisms may play an important role in disease susceptibility as well as response to drug treatment. The ethnic variations in these polymorphisms should be studied so that locally applicable pharmacogenetically based prescription may be realised in the future. Knowledge gained in these areas will enable us to improve the care of people with epilepsy both in Hong Kong and beyond.

REFERENCES

1. Hui, A. C. F., Tang, A., Mok, V., Wong, K. S. and Kay, R. Recurrence after first seizure in the Hong Kong Chinese population. *Epilepsia* 2001; **42**: 94–107.

2. Ng, K. K., Ng, P. W. and Tsang, K. L. Hong Kong Epilepsy Study Group. Clinical characteristics of adult epilepsy patients in the 1997 Hong Kong Epilepsy Registry. *Chinese Medical Journal* 2001; **114**: 84–87.
3. Hui, A. C. F., Lam, J. M. K., Chan, Y. L. *et al.* Role of magnetic resonance imaging in pre-operative evaluation of patients with refractory epilepsy. *Hong Kong Medical Journal* 2003; **9**: 20–24.
4. Fong, C. Y. and Hung, A. Public awareness, attitude, and understanding of epilepsy in Hong Kong Special Administrative Region, China. *Epilepsia* 2002; **43**: 311–316.
5. Kumana, C. R., Lauder, I. J., Chan, M., Ko, W. and Lin, H. J. Differences in diazepam pharmacokinetics in Chinese and White Caucasians—relation to body lipid stores. *European Journal of Clinical Pharmacology* 1987; **32**: 211–215.
6. Woo, E., Chan, Y. M., Yu, Y. L., Chan, Y. W. and Huang, C. Y. If a well-stabilized epileptic patient has a subtherapeutic antiepileptic drug level, should the dose be increased? A randomized prospective study. *Epilepsia* 1988; **29**: 129–139.
7. Leung, G. K. K., Fan, Y. W. and Fong, K. Y. Temporal lobe resection for intractable epilepsy: review of 11 cases. *Hong Kong Medical Journal* 1999; **5**: 329–336.