The Second Biennial Convention of the ASEAN Neurological Association was held on 26th and 27th, July 1997. Abstracts of the Plenary lectures, symposia and free papers were as follows:

Keynote Lecture

ASEAN neurology in the next millennium, upholding the right values

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Values determine our decisions, decisions in turn shape our characters, and determine our futures. This is not only true for an individual, but also for a family, race, nation and a scientific discipline such as neurology. A particular scientific technique such as MRI may bring improvement in neurology practice short term. In the long term, it is dependent on the values we hold. Neurology in South East Asia is still at an early stage, fluid and malleable. The values that we hold today will thus have long lasting effects on the future generations. I believe there are three values that we should consciously uphold and emphasize. They are: research, commitment to excellence and the community.

Research is not primarily for glory. Research is usually regarded as non-urgent and may appear to be extravagant. However, long term, it is the most efficient way of solving medical problems and improving health care. Although medical research is costly and thus usually placed in low priority in the developing countries. When the countries’ economic status improve, medical research do not automatically progress. Research is a culture that needs to be consciously nurtured. I like to see more academic neurologists in the region, comfortably rewarded so as to be able to give undivided attention to research, teaching, as well as clinical practice. Research should be part of the neurology resident training. I would also like to see more clinical neurologists in the region with research degrees. As for ASNA, other than giving full support to the Neurol J Southeast Asia and organizing joint studies, we can also give due honour to those who have done good neurological research in the region.

Secondly it is the commitment to excellence in our work. The reason is that our profession is among one of the most complex, the only way to do it effectively is to do it well. Although some areas in South East Asia is still without the service of a neurologist, taking the region as a whole, the time has come to emphasize quality and not just quantity. The population per neurologist in South East Asia is now one in 500,000, which is not far from the ratio in United Kingdom which is about one in 250,000. One can easily conceive the time when there is too many neurologists in the region. The key to excellence is education. Other than organizing symposium and workshop, ASNA can also help by arranging further training in the world renowned centres of excellence for the residents. Another approach is for ASNA to venture into standard setting, such as initiating joint examinations in the region with well recognized neurology academies.

The third value is commitment to community. We must consciously fight the scourge of excessive individualism, whose view of an individual versus the community is as expressed by the philosopher John Locke: “the individual is prior to society, which comes into existence only through the voluntary contract of individuals”. The view is wrong because we owe what we are to others, that we derive our identity from the community, find meaning and fulfilment by working for others. In this context, we should create the consciousness of the South East Asian neurology community, believing that together, we can achieve more than what we can as an individual nation.
Plenary Lectures:

1. Epilepsy Surgery : Past, Present and Future

Hans O Lüders

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In the late 19th century, Victor Horsley at the age of 29 years and with no formal training as a neurosurgeon embarked in the first surgery of epilepsy. Drs Hughlings Jackson and David Ferrier, well known pioneers of clinical epileptology, were present for Horsley’s surgery. This shows that since its beginning, surgery for epilepsy required a multispecialty effort. This trend has continued until today with surgery of epilepsy representing a subspecialty that only can be performed successfully by teams of experts covering a wide variety of specialties.

Initially surgery of epilepsy was limited to patients with intractable epilepsy who also had macroscopic lesions, like post-traumatic scars. The macroscopic lesions, the neurological examination and the clinical semiology of the seizures were the only guideline to define the location and extend of the epileptogenic zone. F. Krause and O. Foerster were some of the pioneers in that era.

Electroencephalography revolutionized epileptology and particularly surgery of epilepsy. The epileptogenic zone could now be defined by the location of the interictal and particularly ictal EEG abnormalities. Patients who did not show any macroscopic lesion could now be operated for epilepsy if they had medically intractable focal seizures. W. Penfield, H Jasper and Falconer MA played a crucial role in the development of “cryptogenic” surgery of epilepsy.

However, in recent years surgery of epilepsy experienced a new revival with the development of highly sophisticated neuroimaging techniques which allow detection of anatomical (high resolution MRI, FLARE) and physiological (PET, SPECT, MRS) abnormalities which before were only detectable in postmortem specimens or surgical biopsies (migrational disorders, mesial temporal sclerosis, et.). These developments have greatly increased the precision with which we can define the epileptogenic lesions presurgically resulting in a significant improvement in the surgical outcome statistics.

In the last 10-20 years many new surgery of epilepsy centers have been established. Systematic research efforts are being carried out in most of these centers. At the same time, continuously more precise diagnostic methods are being developed. All these efforts should allow us to offer successful epilepsy surgery to a larger proportion of patients with focal epilepsies. Epilepsy surgery will certainly play a progressively more important role in the management of patients with medically intractable focal epilepsies.

2. Thrombolytic treatment in acute stroke

Stephen DAVIS

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The rationale for thrombolytic therapy is based on the hypothesis that recanalization of cerebral vessels occluded by thrombus, with early reperfusion in the “ischaemic penumbra” can reduce infarct size. In the early 1990s, 5 multicentre, randomized, blinded, controlled clinical trials were organized to evaluate the safety and efficacy of either streptokinase or tissue plasminogen activator (tPA) in acute ischaemic stroke. The 3 intravenous streptokinase trials (the Australian Streptokinase Trial and 2 European Trials, MAST-E an MAST-I) were all prematurely terminated due to increased early mortality associated with streptokinase, linked to a major increase in haemorrhagic transformation. However, the Australian trial suggested that early thrombolytic therapy within 3 hours appeared to be potentially efficacious, without increased mortality.

The first large trial using intravenous tPA (ECASS) was a negative trial, although the thrombolytic treatment was associated with improved outcomes when protocol violators were excluded. In this “target population”, excluding patients with early signs on CT scan of major middle cerebral territory
infarction, functional outcome was improved by tPA administered within 6 hours of stroke onset. The American NINDS rtPA trials used a remarkably short time windows of only 3 hours, with half the patients entered within 90 minutes of onset. These paired trials demonstrated a significant benefit with 0.9mg/kg of rtPA, with 30% more patients making a substantial or complete recovery with the thrombolytic therapy. As a result, tPA has been licensed by the FDA in the United States and apparently being widely used.

As a result of uncertainty and controversy about the generalizability of these tPA results, and in view of the negative results form the streptokinase trials, tow other major thrombolytic trials are being performed. These are the ECASS-II trial (0.9mg/kg up to 6 hours) and a North American rtPA trial, entering patients 3-5 hours after stroke onset.

By the end of 1998, the precise role of tPA in ischaemic stroke should be delineated. If the North America results are confirmed, rapid world wide licensing and use of thrombolytic therapy with tPA can be expected shortly after.

Symposiums

Symposium 1: Development of neurology in ASEAN countries

1. Development of neurology in Brunei

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Neurological services develop as a branch of General Medicine at the RIPAS Hospital, Bandar Seri Begawan, the capital of Brunei, which is the only place available for such services for the whole country. From a single-man service to a recent medical staff strength of three people, there has been a modest expansion of such services, especially in the neurophysiological and patient care areas, to cater for the needs of the community and to acquire technologies and implement accepted therapy in the management of adult neurological patients. Referrals from the paediatric department are mainly for neurophysiological investigations.

2. Development of neurology in Indonesia

Mahar MARDJONO

University of Indonesia, Indonesia

The first article in the first issue of the first medical journal in Indonesia in 1852 was a report on the treatment of trigeminal neuralgia. This was followed by several other neurology articles in the same journal, on topics such as trauma of the nervous system, neuroanatomy of the medulla oblongata, epilepsy and syphilis of the nervous system.

In 1921 at the medical school in Batavia, the Department of Psychiatry and Neurology was established. The training of Psychiatrist-Neurologists lasted three years. Neurological diseases encountered were among others; congenital malformations, degenerative diseases, epilepsy and infections of the nervous system.

Neurology as a separate discipline has developed since 1958 in the Medical Faculty of the University of Indonesia, later followed by other medical schools. At present there are departments of neurology in 13 state medical schools all over Indonesia. New diagnostic methods have been gradually introduced since 1958. These include EEG, EMG, evoked potential, angiography, CT scan, MRI and at the Medical Faculty of the University of Indonesia, SPECT.

There are subdivisions of neuroanatomy, neuropathology and neuropathology in the departments of anatomy, physiology and pathology in the medical schools and at the Medical Faculty of the University of Indonesia, also a unit of neuroendoctrine and neurobiology.
At present, there are 305 neurologists and 172 residents in training in Indonesia. The main subjects of research include epilepsy, cerebrovascular diseases and higher functions of the brain.

3. Development of neurology in Malaysia

M Rani JUSOH

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Malaysia has a population of 20 million and consists of 2 land masses, separated by 700 Km of South China Sea. Neurology developed as part of internal medicine with the introduction of scientific medicine by Europeans. Organized services for bigger segment of the population however developed after the establishment of British Residency System in 1874, and with it the building of state and district hospitals. The major scourges of the last century were beri beri and malaria. Cause of beri beri was unknown then, and there was no effective treatment of malaria. To facilitate research, Institute of Pathology was set up in 1900. This later became the Institute for Medical Research. Subsequently the King Edward VII Medical College was established in 1905, which was the centre of excellence for Singapore, but also extended its influence to Malaya. Neurology was practiced mainly by physicians with interest in neurology and also to a certain extent by neurosurgeons. Dr Gwee Ah Leng and Prof. Ransome were among the eminent practitioners. In Kuala Lumpur, neurology was also practiced by physicians with interest in neurology, and from 1963 also by neurosurgeons. Dr Roy Selby set up the Neuropathology Laboratory in 1964, and in 1966, EEG Laboratory. Neurology was accorded departmental status after Dr Balaratnam returned in 1971, and in 1975 the Institute of Neurology was officially opened. The other centre was the University of Malaya’s Medical Faculty which was established in 1963. Dr Danaraj, the first dean was an accomplished neurologist. Presently 3 medical schools are graduating doctors, and we have 15 neurologists (9 private, 6 public). The projected need is 1:500,000 population. There are fairly good radiological and imaging supports. Clinical neurophysiology is available in major hospitals and dedicated neurological rehabilitation services are being planned.

4. Development of neurology in the Philippines

Ester BITANGA

Philippine Neurological Association, Philippines

The development of Neurology in the Philippines is spearheaded by the Philippine Neurological Association (PNA). Celebrating its silver jubilee this year, the PNA is continuously striving to achieve the purpose for which it was formed. It is committed to the pursuit of excellence in the delivery of neurological care, education, and research in the country as well as promotion of the professional welfare of its members.

In twenty years, it has grown from less than twenty neurologists into a strong, solid one hundred-member organization. There are now seven neurology training institutions, two of which are providing pediatric neurology training. These institutions have trained more than seventy neurologists who are now certified fellows of the PNA.

Through its various councils and committees, i.e. Dementia, Epilepsy, Headache, Neuromuscular, and Stroke Councils; Research and Undergraduate Medical Education Committees, the PNA is initiating and undertaking researches relevant to neurological sciences either alone, or in collaboration with other organizations, government and private, local an international. It is providing and continuously improving the quality of neurological education in Philippine medical schools. It is coming up with meaningful programs and policies that will not only enhance the competence and professional growth of its members but will definitely improve the general health, neurological health condition in particular, of the Filipino people.
5. Development of neurology in Singapore

Helen TJIA

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The beginning of neurology in this country cannot be marked by any event or date. As with most countries in the British Commonwealth, neurology existed only as part of Internal Medicine as in the Singapore General Hospital and Toa Payoh Hospitals in the 1950’s and 1960’s. In 1972, following the recommendation of the Committee on Medical Subspecialties, the first Department of Neurosurgery and Neurology in Singapore was formed in Tan Tock Seng Hospital. Subsequently in 1976, neurosurgery and neurology were separated. At this time, the first CT head scanner in Singapore was introduced in Tan Tock Seng Hospital.

In 1980’s there was evident progress in the neuroscience. After their basic neurology training in Singapore, neurologists were sent for further training in stroke, epilepsy, clinical neurophysiology, paediatric neurology and movement disorders at various centres in the United States. A clinical Neuroscience Society was formed in the early 1980’s to meet the needs of a growing neurological community.

Then in 1990, appropriately at the beginning of the decade of the Brain, the Ministry of Heath approved plans to set up a National Neuroscience Institute in Singapore. Singapore today has 21 neurologists in both the public and private sectors. It is planned that these specialists will participate and contribute in the teaching and research at the Neuroscience Institute when it opens at end of this century.

6. Development of neurology in Thailand

Prasert BOONGIRD

*Department of Medicine, Ramathibodi Medical School, Mahidol University, Bankok, Thailand*

In Thailand, neurology was separated from medicine and surgery and formed her own body -- the Neurological Association of Thailand in 1960. Members of the Society, which include not only neurologists, neurosurgeons, psychiatrists but also physicians and scientists with special interest in neurology, have exceeded 300 this year. Half of these members are fully certified by the Thai Board of Neurology which was officially established in 1971. The formal training program is one year in internal medicine and two years in neurology. The Society plays an active role in both national and international academic meetings. By the end of 1997, the Neurological Society of Thailand will own her permanent office in Bangkok, within the same building complex as the Royal Colleges of Physicians, Surgeons and Paediatrics of Thailand.

7. Development of neurology in Vietnam

Duc Hinh LE

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Before 1954, neurology did not exist in Vietnam as a separate specialty. However, there was a Quarter for Lunatics and Prisoners in Bach Mai Hospital although neither neurology nor psychiatry was taught at the Faculty of Medicine and Pharmacy of Hanoi.

The formation of the Neuro-Psychiatry Department at Bach Mai Hospital, with the foundation of the Neuro-Psychiatry Chair at the Faculty of Medicine and Pharmacy of Hanoi was an important landmark in the development of neurology in Vietnam. In 1957, the first paper entitled “Tumors at the base of the skull” was presented to public. In 1959, myelography, carotid angiography, pneumoencephalography investigations and neurosurgical treatment of cerebral tumor, abscess and cerebral arterio-venous malformation became available. During the same period, a network of neuro-psychiatry services was established in the provinces in North Vietnam. In 1969, neurology and
psychiatry were separated. The Central Service of Neurology of Bach Mai Hospital, a leader in Vietnamese neurology, was subsequently reorganized into three sections: general neurology, neuro-infections and child neurology. EEG, EMG and Echoencephalography were by then used routinely in the clinical practice. In the mean time, neurology and neurosurgery also developed in South Vietnam. After 1973, neurological education became the first priority, training of neurologists became more organized. From 1975, neurologists from the north and south worked together to develop neurology in the reunified Vietnam. Presently, there is a large network of neurology services in the provinces. In the big cities, CT scan, MRI and ultrasound imaging of the cerebral arteries are available. The main clinical research activities are in stroke, viral encephalitis, epilepsy, tumors and degenerative disease of CNS.

Symposium 2: Epilepsy

1. Common seizure disorders in childhood

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Benign Rolandic epilepsy (BRE) and juvenile myoclonic epilepsy (JME) are two common epilepsy syndromes in paediatrics, yet they are often misdiagnosed.

BRE is the most common epilepsy syndrome in primary school children. Seizures are usually partial with motor or sensory involvement of one side of the face, oropharynx, and sometimes one upper limb. Seizures occur most commonly in sleep when the partial seizures may evolve to generalised convulsions. The EEG shows slow, diphasic, high-voltage, centro-temporal spikes, activated by sleep. Seizures start between the ages of 3 to 13 years, are mild and variable in frequency and stop in the late teens. Seizures are usually easily controlled by anticonvulsants, but even in the occasional patient whose seizure does not respond to anticonvulsants, the seizures invariably stop after adolescence.

JME is a syndrome of idiopathic generalised epilepsy with age-related onset (pre- to post-puberty). The most common type of seizures are myoclonic jerks of the upper limbs without alteration of consciousness. Many patients also have generalised tonic-clonic seizures, and a few patients also have absences. The seizures of all types occur predominantly shortly after waking and often precipitated by sleep withdrawal. EEG shows rapid (≠ / > 3 Hz) generalised spike waves and polyspike waves. The seizures are easily controlled by valproate but usually recur when valproate is stopped.

In both epilepsy syndromes, the patients are neurologically and intellectually normal and there is a high prevalence of epilepsy and febrile seizures in relatives. However, the exact mode of inheritance is still debated.

2. Seizure Classification

Hans O Lüders

Department of Neurology, Cleveland Clinic Foundation, Cleveland, Ohio, USA

The current classification of epileptic seizures approved by the International League against Epilepsy was introduced before the modern neuroimaging techniques revolutionized our ability to diagnose epilepsies. In the last century epileptic seizures were classified mainly by clinical semiological features. With the introduction of the EEG in the late 1930’s, a classification of “electro-clinical complexes” was introduced and particularly for focal epilepsies a one-to-one relationship was assumed between electro-clinical complexes and epileptic syndromes. This system led to a confusion between electro-clinical complexes and epileptic syndromes and at the same time, de-emphasized the importance of clinical ictal semiology.

The development of ultra sensitive neuroimaging techniques allows us now to define with much greater precision the epileptic syndromes. It also has shown that there is no one-to-one relationship
between epileptic syndromes and electro-clinical complexes. These advances call for a re-evaluation of the system currently used for classification of epileptic seizures.

In this presentation, a purely semio logical classification of seizure will be presented. This system has the following advantages: (1) it stresses the importance of pure clinical semiology; (2) it makes a clear distinction between epileptic syndrome and epileptic seizures; (3) it adds lateralizing and somatotopic modifiers to the classification of epileptic seizures; (4) it provides a simple terminology that can be used colloquially; (5) it permits classification of all possible seizure evolutions.

3. Neuroimaging in epilepsy

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Determining the underlying cause of a patient’s seizures is a fundamental goal in the workup of epilepsy. Imaging of the brain provides valuable information in this regard. Structural brain imaging reveals morphologic lesions of the brain such as localized atrophy, tumors, vascular malformations and cortical developmental abnormalities. Magnetic resonance imaging is the preferred tool for structural brain imaging and examples of lesions visualized with this tool are demonstrated and discussed in some detail. Functional brain imaging shows up biochemical or metabolic abnormalities in the epileptic brain. SPECT (single photon emission computed tomography), MRS (Magnetic resonance spectroscopy) and PET (Positron Emission Tomography) are modalities used. These techniques are technically more sophisticated and less widely available. The principles and benefits underlying their use as well as selected examples are discussed. Finally ‘functional MRI’ using BOLD (blood oxygen level dependent) contrast as a tool to map out functional brain areas and means to give us insight into epileptic brain dysfunction is introduced.

Symposium 3: Central Nervous System Infection in ASEAN Countries

1. CNS infection in Indonesia

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The following data were compiled from the department of neurology in some of the teaching hospitals in Indonesia (from Sumatra, Java, Bali and Celebes islands). Most of the CNS infections were due to bacterial meningitis, abscesses, and viral encephalitis. The diagnosis were based on cerebrospinal fluid examination and CT scan. Malaria was reported in North Celebes. Cysteercerosis was seen in Bali. There was no fungal infection reported. From the 5 cases of AIDS seen in Bandung, 2 had intracranial mass lesions. Meningococcal infection is a potential threat for pilgrims going to Haj. However, vaccination and surveillance of suspected cases prevented this disease from spreading.

2. Myelopathy in HIV disease

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Spinal cord disease contributes significantly to morbidity in HIV disease, and has been described in 41-48% of consecutive AIDS post mortems. The aetiology and pathological evolution of the commonest disorder, vacuolar myelopathy (VM), is unknown.
We studied prospectively the incidence and nature of myelopathies in HIV disease, investigated the role of macrophage-derived tumour necrosis factor alpha (TNFα) in the pathogenesis of VM, and compared, morphologically, the changes in mild/moderate and severe VM.

Fifty two cases of myelopathy were seen over a period of 26 months in a population of 1930 HIV seropositive individuals (490 AIDS). Clinically, 27 had VM and 25 had other myelopathies (7 acute, 11 acute/subacute myeloradiculopathies and 7 chronic myeloradiculopathies). The diagnosis was confirmed at post-mortem in 14 cases (VM [n=7], herpes zoster myelitis [n=1], CMV myeloradiculopathy [n=1], lymphomatous myeloradiculopathy [n=1], and cervical spondylosis [n=1]).

Histopathological studies in 20 patients with VM suggested that the pathological changes start in the mid-low thoracic cord and increase rostrally as the disease progresses. Activated macrophages were prominent in mild to moderate lesions. Immunocytochemistry in 15 cords with VM demonstrated the presence of TNFα in macrophages, microglia and endothelial cells in the lateral and posterior columns (controls: 4 AIDS patients without VM, 5 HIV seronegative). CSF levels of TNFα in patients with VM (n=17) were no different from those in HIV seropositive (n=48) and seronegative (n=7) normal and disease controls.

Conclusions: the annual incidence of myelopathy was 1.1% among HIV seropositives and 3.5% among patients with AIDS. VM accounts for approximately 50% of the clinical myelopathies in HIV infection. Macrophage-derived cytokines including TNFα may be relevant to the pathogenesis of vascular change in VM, although other mechanisms acting synergistically are probably involved.

3. Tuberculous meningitis in children

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Tuberculous meningitis (TBM) is essentially a disease of young children. 393 TBM cases seen at the Philippine Children’s Medical Center (PCMC) between 1987 to 1996, showed that 73% of patients were under age 5, and 45% were below age 2.

TBM is the most common cause of death in tuberculous infection. Neuropathological studies indicate that the most frequent findings are basal exudates, borderzone encephalitis, varying degrees of hydrocephalus, arteritis with infarctions, and granulomas. Most cases present with fever and vomiting. Seizures are more common in children while headache is more often seen in adults. The most common neurological findings are altered sensorium, neck rigidity, motor and cranial deficits.

In addition to the usual clinical criteria and CT scan findings, cranial ultrasound was utilized to diagnose CNS infections including neortuberculosis. Neurosonography can demonstrate the whole spectrum of neortuberculosis pathology: ventriculomegaly, infarcts, abscesses, tuberculomas, atrophic and malacic changes.

250 TBM cases received medical treatment alone. Surgery (ventriculoperitoneal shunting) aimed primarily at relieving intracranial hypertension secondary to hydrocephalus was done in 143 cases. The results did not significantly differ from those treated only medically.

117 patients had completed various durations of treatment with Isoniazid (INH), Rifampicin (RIF), and Pyrazinamide (PZA) and followed up from one month to ninety months. Results suggested that treatment for 6 months was probably adequate.

The mortality rate for TBM has decreased from 24% in the early 70s to 14% in this report.

4. Asian way in managing CNS AIDS

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In mid-July 1996, an estimated 1 million adult were living with HIV/AIDS in Southeast Asia. The general epidemiology and estimated prevalence rates for Asian countries are extremely diverse.
As therapy for HIV/AIDS improves, the HIV infected patients live longer and experience a greater number of opportunistic infections (OIs). Cryptococcal meningitis is the most common cause of OIs (25.8%) and toxoplasmosis is the most common mass lesion in adult patients with AIDS in Thailand.

For HIV patients who have generalized CNS symptoms without localization, we recommend lumbar puncture to rule cryptococcal meningitis. For patients who have focal CNS symptoms and signs with severe headache, empirical treatment with anti-toxoplasmal drugs for two weeks is recommended, with or without the CT scan.

Prevention is better than cure. There is evidence that preventive efforts by AIDS education are taking effect in Thailand. HIV infection in military conscripts has dropped from 3.5 percent in 1993 to 2.5 percent in 1995. This is a good news.

5. Japanese encephalitis in Vietnam

Duc Hinh LE

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In Vietnam, due to geographical and ecological conditions, Japanese encephalitis (JE) is the most common viral encephalitis. The encephalitis occurs in both sporadic and epidemic forms. For a long time, sporadic cases have been reported especially in South Vietnam while annual epidemics were seen in the North. The seasonal outbreaks usually occur during summer. The most important vector is the mosquito Culex Tritaeniorhynchus in the rural areas and wild birds are natural reservoirs of the virus, which is a flavivirus from Togaviridae family. Pig is an important amplifying hosts. The disease predominantly affects children. 88.31% of the patients were <15 years of age; 83.6% of the patients were between 2 to 7 years. Both sexes are affected with slight male predominance. The most common symptoms and signs during onset are fever, vomiting and headache, followed by the triad "fever >38°C, convulsions and/or motor deficit-abnormal sensorium". The CSF abnormalities are pleocytosis with lymphocyte predominance and a moderately elevated protein level in 90.4% of cases. Clinical diagnosis is confirmed by serological tests, techniques by Capture ELISA for IgM antibodies is particularly useful. Mortality is approximately 4%. Death usually occurs by 3rd to 8th day. Unfortunately, survivors may have severe permanent sequelae. Treatment is mainly symptomatic. For control of the infection, beside spraying insecticides during the early stage of a JE outbreak, vaccination of the susceptible children is also important. We use vaccine produced by the Institute of Hygiene and Epidemiology of Vietnam.

Symposium 4: Stroke

1. Epidemiology of stroke in ASEAN countries

Jusuf MISBACH

ASNA Standing Committee For Stroke, c/o Department of Neurology, Medical Faculty, University of Indonesia, Jakarta, Indonesia

Stroke is the major cause of death and disability in developed countries. There is very little established data concerning stroke epidemiology in ASEAN countries. ASEAN Neurological Association (ASNA) Council has formed a standing committee for stroke in July 1996 in Jakarta to design a stroke protocol for epidemiological study. This prospective study aimed to investigate the demographic characteristics, type, clinical features, risk factors and discharge status of hospitalized acute stroke patients.

The participating countries were Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand. Each country has one or two representative for data collection of new stroke cases in their hospitals using ASNA stroke protocol during the period of October 1, 1996 to March 31, 1997.

Of the 3195 patients from 50 hospital in six countries, (Brunei 53, Indonesia 2065, Malaysia 300, Philippines 545, Singapore 232), the mean age was 59.9 ± 0.2 years (range: 8-95 years). Mean admission time was 43.3 ± 1.7 hours. It was shortest in Malaysia and longest in Brunei. Motor
disability was the most common clinical feature in all countries. Mean length of stay was 11.0 ± 0.2 days. CT scan was done in 65.4% of patients. Lacunar infarct was seen in 15.4%, ICH in 20% and SAH in 2.3% of patients. Mean death rate was 21%, the lowest being in Brunei (7.7%). Hypertension was the most common risk factor (71.5%) followed by smoking (26.5%), prior TIA/Stroke (23.6%), ischaemic heart disease (20.9%) and diabetes mellitus (18.9%). Mean cholesterol level was 212.9 ± 1.2 mg/dl and mean haematocrit values was 40.5 ± 0.1 vol. %.

This hospital based stroke data showed the recent characteristic of stroke patients in ASEAN countries and it will be very important data for health policy maker in this region and for further cooperative research in the future.

2. Posterior circulation stroke

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Posterior circulation strokes have not received as much attention as carotid territory infarcts, partly because of the prevailing view that much cannot be done for these infarcts. At the New England Medical Center, we have a prospective collection of all patients seen here since 1986 with strokes in the posterior circulation. Almost 40% had transient ischaemic attacks (TIA) of whom 2 thirds subsequently had strokes. The other 60% presented with strokes without any preceding TIA. Eighty five percent had infarcts localizable clinically or visualized on neuroimaging. Infarcts were divided into proximal (medulla and PICA supplied cerebellum), middle (pons and AICA supplied cerebellum) an distal (midbrain, SCA supplied cerebellum, occipital lobes, thalamus and temporal lobes) territories. Infarcts were most common in the distal territory, about 2 time more than that of the proximal and middle territories respectively. The size and distribution of infarct may help to predict the underlying mechanism. Embolism was the most common mechanism, 45% with cardioembolism constituting more than half, and proximal arterial source slightly more than a quarter. Proximal arterial disease was also common, found in about 46% of the study population.

3. Small vessel disease

Wai-Keong NG

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Small vessel disease is a term to describe infarcts attributed to obstruction of penetrating terminal branches of the large cerebral arteries. The lesion typically is 0.5 cm - 1.5 cm in diameter in the deep white matter. Historically, these lesions are called lacunar infarcts described by Dechambre in 1838 and repopularised by Fischer 30 years ago. These lesions often give rise to distinct clinical syndromes: pure motor stroke, pure sensory stroke, ataxic hemiparesis and sensori-motor stroke.

However, the concept of lacunar infarction is controversial. It is believed that the infarcts are due to a pathological process called lipohyalinosis which is the result of long standing hypertension. The available epidemiological data suggest that these infarcts are more common than large vessel infarcts among Asians. In a comparative study of two stroke registries in 1994 at Austin and Repatriation Medical Center, Melbourne and our hospital, we found that lacunar infarcts are more common among Malaysians. Upon comparing large vessel disease (108 patients) and small vessel disease (116 patients) in Malaysian patients, hypertension and the other conventional risk factors of stroke were not independent predictors favoring lacunar infarct.

Recently, several reports of a microangiopathy state causing lacunar infarcts was proposed. Hyperinsulinaemia was found to be associated with small vessel disease compared to large vessel disease. We investigated the hypothesis that insulin resistance may have a pathogenic role in lacunar infarcts. 16 lacunar infarct patients and 15 age and sex matched controls underwent a glucose tolerance test. 31% (5/16) patients have glucose intolerance vs 26.7% (4/15) in controls. 11 patients from each remaining groups underwent a short insulin tolerance test as a quantitative measure of
insulin resistance. 90% of patients and 46% of controls have hypertension. The mean insulin sensitivity in lacunar infarct patients was 133.3 (SD13) umol/l/min compared to 133.7(SD16) umol/l/min in controls. The normal value of insulin sensitivity in non-hypertensive controls is 179 (SD11) umol/l/min. The fasting insulin level is significantly higher in lacunar infarcts (7.83 u/ml) vs control (4.45 u/ml). Insulin sensitivity is lower in lacunar infarct patients and hypertensive controls compared to non-hypertensive controls.

These suggest that the level of insulin resistance may be important in the pathogenesis of small vessel disease.

4. Anti-thrombotic treatment

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Current treatment of ischemic stroke is still controversial. While the role of antithrombotic therapy is based on the pathogenesis of ischemic stroke, using the rules of evidence, the optimal choice of therapy to prevent stroke worsening or recurrence has been elusive. The purpose of this discussion is to review the recent developments in the use of antithrombotic agents in ischemic stroke.

A recent study of the National Institute of Neurologic Disease (NINDS) and Stroke showed improved stroke outcome in selected patients given intravenous rtPA at three months. With the addition of more results the Antiplatelet Trialists overview analysis revealed a 23% risk reduction of vascular related events in patients who had history of TIA or stroke. Aspirin and Ticlopidine from the standpoint of these studies are both beneficial. Likewise The Second European Stroke Prevention Study ESPS-2 recently published its results which showed that the combination of dipyridamole and aspirin reduced the risk of stroke by 37%. The clopidogrel versus aspirin in patients at risk of ischemic events (CAPRIE) study showed that treatment with clopidogrel, a new antiplatelet agent provided an overall relative risk reduction of 8.7% compared to aspirin.

Practice guidelines for the management of acute ischemic stroke using rules of evidence was recently issued by the Stroke Council of the American Heart Association. With regards to heparin, due to the lack of data to support its safety and efficacy no specific recommendation was made regarding its use. Recently a randomized double-blind placebo controlled study on the use of low molecular weight heparin (Nadroparin) demonstrated improved outcome at six months. Finally, warfarin in stroke prevention among patients with non-valvular atrial fibrillation has been shown to be effective in preventing strokes in about two-thirds of patients with an acceptable risk of bleeding.

Symposium 5 : Cultural aspect of neurology in ASEAN countries

1. Startle response in Brunei

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Several syndromes, considered to be culture-bound, have been described as a response to startle. These are the “Latah” of Malaysia and Indonesia, “Miryachit” of Siberia, “Jumping Frenchman of Maine”. Similar syndromes have been described from the Philippines, Japan and the United States. The purpose of this study is to describe a similar startle response syndrome, known as “Gigiran” in Brunei Darussalam. Full clinical, family, social and psychological histories are taken, and neurological examination, EEG’s and CT scan of the brain are also performed. This response seems to be a culture-bound syndrome closely related to “Latah”. It is exclusively seen in females affecting mostly Malays. Most of the affected woman are illiterate or semi-literate, from the lower socio-economic strata. This startle response comprises of 2 components : a) an initial vocalization with repetition of either meaningless words or obscenities, and b) when more elaborate, performing actions repetitively, either spontaneously or in response to suggestions. The syndrome is seen between the third and eight decade of age and becomes progressively more severe with age. A
peculiar feature noted is the invariable association with abortions, thus, linking the origin of the name “Gigiran” to “Guguran”, which means abortion.

2. “Latah” as a differential diagnosis of psychogenic seizures

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“Latah” is a culture bound syndrome in Indonesia and Malaysia. It is a hypersensitive state to sudden fright or startle, which provokes the suspension of all normal activities, triggers involuntary motor and verbal reactions that are stereotypical and socially inappropriate (corporalia). In more severe form, it is also accompanied by mimetic or echo symptoms, i.e. echolalia, echopraxia and forced automatic obedience. It affects mainly middle-aged women of relatively low social status and is often precipitated by major stress. Severe cases are often ashamed of the disorder and tend to shy away from social interaction to avoid teasing and the provocation of the “Latah” performance. However milder cases (in particular those with corporalia) seem to enjoy the attention they received through their inappropriate behavior. It is a differential diagnosis of psychogenic seizures because of its stereotypical pattern and close relationship to emotional conditions.

3. Cultural belief system and headache

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In a community survey based on 595 normal subjects in Malaysia (Alders et al Headache 1996; 36:379), exposure to sun (52%) was the main triggering factors for migraine. A clinical study by another Malaysian group, Haniffah & Win (1994) from the northern state of Kelantan however, found wearing of headscarves as an important triggering factor of migraine seen in 37% of women. Other than stress, sleep and menstruation, there is wide variation in the attributed precipitating causes of headache in the literature, particularly the roles of temperature and food. A review of the placebo controlled study on “chocolate headache” by Wolfe (1972) and Moffat et al (1974) showed that some subjects who believed chocolate caused their headaches developed migraine upon taking the placebo. This demonstrated that belief system itself is enough to precipitate headache without any particular chemical or physiological factor. The sun exposure headache, wearing of headscarves and the many foods (such as durian and fried food) that has been attributed to cause headache in the local population may thus be due to the cultural believes, i.e., headache from “heatiness”. Belief system may also be the explanation of other attributed causes of headache, such as chocolate, citrus fruits, fats, pineapples, onions reported from the Western populations. It can also explain the wide variations in the precipitating causes of headache in the literature. Headache may thus be considered as another example of “culture bound syndrome”.

4. Indigenous healing practices in the Philippines

Ester BITANGA

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Filipino traditional medicine is defined as the sum total of the knowledge, skills, and practices recognized and enriched by the Filipino people in order to maintain and improve their health for the wholeness of their being, their community, the society and the inter-relatedness of these. This is based on Filipino culture, history and heritage.

There is widespread practice of traditional medicine in the Philippines and the traditional medical practitioners (TMPs) coexist with the westernized medical doctors. A 1990 research on TMPs estimates that there are roughly 250,000 TMPs in the country’s 42,000 barangays with a ratio of 1
TMP for every 320 Filipinos. A 1995 estimate of the doctor-patient ration is 1:8,825. These figures clearly show that TMPs play a significant role in the delivery of basic health services in the Philippines.

Traditional concepts of illness causation exist and parallel that of treatment. These Filipino theories of causes of illness are categorized into: mystical (life-stuff and souls), personalistic (ghost, gods, witches and sorcerers), and naturalistic (wind, food, hot and cold). Epilepsy, a recognized neurological disease in western medicine is traditionally believed to be due to multiple levels of causation: poor blood circulation, heredity, environmental spirits and sorcery. The traditional healers specializing in counter sorcery are consulted since they are perceived to be more effective for this illness.

The healers use various indigenous methods of diagnosis and treatment such as prayers, herbal healing, hilot, tawas, pangkontra sa kulam, use of oils, touching, and spiritual healing, used alone or in combination.

5. Epilepsy: traditional Chinese medicine theory and acupuncture therapy

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*Department of Neurology, Singapore General Hospital, Singapore **China Academy of Traditional Chinese Medicine, Beijing, People’s Republic of China ***Ang Mo Kio Community Hospital, Singapore

According to the traditional Chinese medicine theory, epilepsy is caused by liver fire, phlegm heat, stagnant liver qi and/or accumulation of turbid phlegm. These give rise to disturbance of mental activities, loss of consciousness and convulsions. Long-standing epilepsy leads to yin deficiency of the liver & kidneys and yang deficiency of the spleen & kidneys. These deficiencies in turn worsen epilepsy.

For thousand years in China, acupuncture has been used to treat all types of epilepsy, during as well as in between seizures. Acupuncture is used to remove liver fire & phlegm heat and to dispel turbid phlegm by soothing liver qi. For acupuncture to be effective in long-standing epilepsy, it must include reinforcing yin and/or yang deficiencies as part of the overall treatment.

There is inadequate information in the Chinese and Western medical literature on the efficacy of acupuncture in patients refractory to antiepileptic drugs (AEDs). A study was conducted to assess the safety and beneficial effect of acupuncture as an adjuvant therapy in medically refractory focal epilepsy patients. Twenty one patients, 13 females and 8 males, with a mean age of 32 years (range: 19-59 years) and a mean duration of epilepsy of 18 years (range: 5-40 years), were recruited. They received 4 acupuncture treatment courses (10 treatment sessions per course) over a 4 month period. All patients received the same needling technique given by the same acupuncturist on the same body & auricular acupuncture points. AED dosages for each patient remained unchanged.

Except one who dropped out after 3 months (inconvenient to attend acupuncture sessions), 20 patients (95.2%) completed treatment. Compared to the 3-month period before treatment, seizure control improved in 15 patients (71.4%) during acupuncture: 1 (4.7%) became seizure free, 6 (28.6%) had >50% reduction in average monthly seizure frequency, and 8 (38%) had <50% reduction. Seizures frequency remained unchanged or increased in 5 patients (24.8%) who did not need AED dosage increment. Thirteen patients (61.9%) had reduction in average number of seizure-day per month and 16 patients (76.2%) had longer seizure free interval. 3 months after stopping acupuncture, 12 patients (57.1%) continued to have less frequent seizures compared to pre-acupuncture treatment period. All tolerated acupuncture well with no complication.

In conclusion, acupuncture was safe, and beneficial as an adjuvant therapy in about 3 quarter of medically refractory epilepsy patients.
6. Culture and neurology in Thailand
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The 700 years of independence of the country have allowed Thai culture to develop, progress and to achieve high degree of refinement. The culture has infiltrated thoroughly all aspects of the Thai life. Medicine is of no exception, also heavily influenced by the culture. Before the introduction of modern medicine, the act of healing of chronic neurological problems such as stroke, back or limb pain is almost exclusively accomplished by the so called culture-created medicine -- the traditional Thai massage, with or without herbal oils or aromatics. These regimens are still used to-day as an adjunct to modern medicine. Thai people had to travel a long way to various temples or well known clinics in order to obtain such a treatment in the old days. Nowadays, if they can afford, they can simply find that kind of therapy in many first-class hotels in Bangkok and big cities in Thailand.

Symposium 6: Neurology practice in the next millennium

1. Future directions in stroke treatment
Stephen DAVIS

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In acute stroke, the delineation of the ischaemic penumbra in animal models and in stroke patients, underlies the concept that earlier acute reperfusion or neuroprotection can restore potentially viable but threatened brain tissue in the first few hours after stroke onset.

The delineation of “misery perfusion” using Positron Emission Tomography, or diffusion-perfusion mismatch using echoplanar MRI supports the concept of reperfusion strategies. Neuroprotective therapies are based on the treatment of the damaging biochemical sequelae that occur in acute ischaemia, including activation of NMDA receptors by excitatory amino acid neurotransmitters and release of free radicals.

In addition to thrombolysis, reperfusion strategies include haemodilution which has been largely disproven in clinical trials and anti-thrombotic strategies which include unfractionated heparin, low molecular weight heparin/heparinoids and aspirin. Recent trials indicate that aspirin is beneficial without significant risk in acute ischaemic stroke; low molecular weight heparin/heparinoids appear attractive with further important trial results awaited; while the use of unfractionated subcutaneous heparin in the International Stroke Trial was associated with adverse outcomes.

Despite promising results in animal models and in initial human studies, the early promise of neuroprotective therapies has been largely unfulfilled. At least two major phase III trials of NMDA receptor antagonists were terminated prematurely due to either lack of efficacy or a trend to increased mortality. After initial positive results, the drug Nimodipine had not been shown to be of value in ischaemic stroke. A major trial of the free radical scavenger Tirilazad was also prematurely terminated because of a trend to increased mortality. A large number of trials are still in progress and more definitive results are still awaited. These include trials of Lubeluzole, anti-ICAM antibodies and Cerestat, a non-NMDA antagonist.

In theory, the combination of neuroprotective and reperfusion strategies is an attractive therapeutic approach. With delineation of specific single acute stroke therapies, large multimodality trials will be conducted in the near future.
2. Functional MRI in neurology

Robert TIEN

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Functional MR imaging in a broad definition includes perfusion MR imaging, diffusion MR imaging, MR spectroscopy imaging and task activated MR imaging. These revolutional MR imaging techniques enable us to probe the pathophysiologlcal, biochemical aspects of varieties brain disorders and have great impact on cognitive science.

3. Molecular neuroscience : diagnostic and therapeutic applications

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New insights into molecular mechanisms of neurologic diseases are transforming the field, allowing novel strategies for the diagnosis and treatment of neurologic diseases.

Diagnostic applications for trinucleotide repeat expansion diseases have evolved. Development of a rapid polymerase chain reaction based technique has allowed screening of normals, patients with suspected and proven Huntington’s Disease, presymptomatic carriers and family members at risk. Amongst local controls, the range of trinucleotide repeats was 15-30. Amongst patients positive for the disease, 22 had 40 or more repeats. It is noteworthy that to date, no overlap has been noted in these two groups locally. Preliminary screening of more than 300 male cases of non-specific mental retardation for the “Fragile X syndrome” suggests an incidence of about 2.4%.

Therapeutic applications derive potential from the insertion of genetic material to modulate function at the cellular level. Cells are driven towards or away from apoptosis by the interaction of a variety of gene products. Our initial in vitro and in vivo experiments of bcl-2 transfected C6 and other glioma cell lines incubated with Apo2L protein will illustrate potential treatment strategies, obstacles and challenges.

Satellite Symposium

Satellite Symposium 1 : Newer Antiepileptic Drugs

1. An overview of newer antiepileptic drugs

Raymond Azman ALI

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About 70-80% of patients with epilepsy can have their seizures controlled with one anti-epileptic drug. The remaining patients will require a second drug or a newer anti-epileptic drug for seizure control. The addition of new drugs must be done within the first few years of diagnosis because the chance of achieving seizure control with a new drug once a patient has had persistent seizures for more than 5 years is less than 10%. Although epilepsy surgery offers cure/control for medically refractory patients, only about 5-10% of such patients are potential surgical candidates. Before considering a newer, usually more expensive antiepileptic drug, it would be wise to review the diagnosis, compliance and seizure subtype. Often, a patient has been labeled as having cryptogenic epilepsy on the basis of a normal brain CT scan when, in fact, he/she has been harboring a low-grade glioma which is amenable to surgery. The newer antiepileptic drugs include felbamate, gabapentin,
lamotrigine, oxcarbazepine, piracetam (and its derivative, LO-59), vigabatrin, tiagabine, topiramate, remacemide and zonisamide. The assessment of the efficacy of these drugs is difficult because all have been tried as “add-on” drugs in patients who have had epilepsy for many years and have tried many drugs previously. A recent meta-analysis of various studies involving 3883 patients, however, suggest that these drugs were not significantly different in terms of efficacy and tolerability (Br Med J 1996; 313:1169-74).

2. Efficacy and safety of Topiramate

Simon SHORVON

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The definitive trials provide clear-cut evidence of antiepileptic efficacy. A range of placebo controlled parallel group studies showed an overall 50% or more reduction in seizures of 44% in 527 patients with severe intractable partial epilepsy compared with 12% in 216 patients given placebo. The rate of 75% reduction was 21% in the patients (4% in placebo) and 100% reduction in 5% (none of the placebo group). Similar reductions were observed in all partial seizure types (e.g. simple partial, complex partial and secondarily generalized seizures), in both genders and all adult age groups. The clinical effect increased with increasing dosage, but most patients were controlled at daily doses between 400-600mg. There is now over 3000 patient years exposure to the drug, including over 100 patients on the drug for 5-7 years, which provides the database for safety analysis. The commonest side effects are effects on cognition, somnolence, dizziness, paraesthesia, nervousness, difficulties with memory and speech disturbances (these are side effects which occurred in the clinic trials at frequencies greater than 10%). The side effects are observed usually at the onset of therapy and the rates recorded in clinical trials may have been partly due to the fast titration rate. No serious idiosyncratic reactions (e.g. rash, hematological, hepatic reactions) have been reported. Weight loss is also a common side effect and is occasionally severe. Renal stones occur at a rate of about 1% a year. Preliminary results from post-registration studies have suggested effectiveness in generalized seizures and the drug may have a very promising effect in primary generalized seizures and the drug may have a very promising effect in primary generalized tonic clonic seizures. A randomized study comparing fast and slow titration rates also shows better tolerability at slow rates with equal efficacy. A metaanalysis of all placebo controlled trials of new antiepileptics provide some evidence for comparison of efficacy and side effects. The differences were not significant although the mean efficacy of topiramate was greater than any other drug. The same dataset shows that a significantly larger number of patients respond to topiramate than to other drugs. Topiramate is therefore a promising new addition to antiepileptic therapy with an excellent efficacy and safety profile.

Satellite Symposium 2: Stroke

Satellite Symposium 3: Headache

The management of migraine

Benjamin ONG

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Migraine is a chronic and episodically recurring headache disorder with inter-patient variability in frequency, severity and associated symptoms. The International Headache Society’s definition is a useful diagnostic guide when one is doing clinical studies and can even be applied to population surveys; but in individual cases, can be too exclusive. Similarly, there is a wide choice of pharmacological agents that have been studied in both acute abortive therapy and in “preventive” or interval treatment.

Accuracy of diagnosis is paramount and symptomatic headaches must first be excluded. When the diagnosis of migraine is confirmed, initial inquiry should be directed towards the identification of
potential trigger factors. These triggers may be environmental, food and drink related, due to hormonal changes or related to stress, to name a few. Where possible, simple advice on avoidance of these triggers might go a long way to reducing headache frequency and severity. Many non-pharmacological treatment modalities have been tried and these are too numerous to cover in this brief abstract.

When pharmacological treatment is indicated, there is a choice of abortive therapy alone or interval therapy with abortive therapy when the headache breaks through. Because of the wide choice of drugs available, doctors should aim to individualize treatment. The ideal drug should work rapidly by the oral route, produce no or little side effects and be inexpensive. Pre-existing medical conditions influence drug choices. Interval treatment should best be used when headaches are frequent. This is subjective but headaches that occur weekly certainly would qualify. The choices include beta-blockers, calcium blockers, tri-cyclic antidepressants, anticonvulsants and serotonin antagonists. Sodium valproate, an anti-convulsant, has recently been shown to have some preventive benefit in migraine. With this variety, it should be possible to use an agent that takes into consideration co-existing medical problems and the potential side effect profile in drug choice.

Aborting acute migraine necessitates that the agent be taken early into the attack. Simple analgesics like aspirin and paracetamol should be tried initially, with an anti-emetic like metoclopramide if vomiting is problematic. Ergots are cheap and effective should simple analgesics fail. Selective 5HT agonists have also been shown to be effective and oral sumatriptan is a good alternative to ergots. Self-administered subcutaneous sumatriptan is an excellent choice should oral agents fail because of nausea or vomiting. The non-steroidal anti-inflammatory drugs are also effective and long lasting in effect should simple analgesic medication fail.

Finally, one must not forget the fact that patient’s need reassurance and guidance on usage of medication if the latter is to work effectively. Many have unrealistic expectations of a cure and should be counseled that the condition tends to recur but that effective and intelligent usage of medication should minimize the discomfort of the headache.

Free Papers

Oral Presentation 1: General Neurology and Cerebrovascular Disease

O1.1. The reasons for hospitalization amongst patients with Parkinson’s disease

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Objective: To study the reasons for which patients with Parkinson’s disease (PD) require admission to hospital.

Method: A retrospective review of all patients with PD who were admitted to our hospital in 1995. Results: In the period of the study, there were 260 admissions involving 173 PD patients. The average age was 74.6 years. Of those admitted, 137 were males and 123 were females. There were 222 Chinese, 23 Indians, 13 Malays, 1 Eurasian and 1 Filipino. 91 (35%) of the admissions were to the geriatrics department, 64 (25%) to general medicine, 50 (19%) to neurology, 18 (7%) to general surgery, 18 (7%) to orthopedics, 8 (3%) to neurosurgery and 5 (2%) to cardiovascular medicine. The average duration of hospitalization was 11.7 days. 56 (22%) of the admissions were for chest infections, 34 (13%) for falls, 27 (10%) for control of symptoms, 24 (9%) for general medical problems, 20 (8%) for urinary dysfunction, 16 (6%) for other neurological disorders, 16 (6%) for surgical problems, 14 (5%) for management of various malignancies, 13 (5%) for cardiovascular problems, 10 (4%) for side effects of antiparkinson’s drugs, 9 (4%) as newly diagnosed cases, 8 (3%) for constipation, 8 (3%) for depression and 3 (1%) for dysphagia.

Conclusion: The primary reasons for which patients with PD required admission to hospital in our local context were (1) chest infections, (2) falls, (3) control of symptoms, (4) general medical problems and (5) urinary dysfunction.
O1.2. Posteroventral pallidotomy and pallidal deep brain stimulation in the treatment of advanced Parkinson’s disease

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Introduction: Patients with Parkinson’s disease (PD) often develop severe motor fluctuations after several years of pharmacological treatment. There has been a resurgence of interest in functional neurosurgery in the treatment of complicated PD patients. Objectives: To assess the effects of pallidotomy and pallidal deep brain stimulation in improving the cardinal features of PD, namely tremor, rigidity, bradykinesia and also its effects on motor fluctuations such as levodopa-induced dyskinesia. Methods: 3 patients had a posteroventral pallidotomy contralateral to their more severe side, using microelectrode-guided stereotactic surgery and 1 patient had a Medtronic Itrel II deep brain stimulator placed in the same location. Patients had to be at least Hoehn and Yahr stage 4 in their OFF state, with a greater than n30% response after giving oral levodopa. Assessment included UPDRS ON and OFF, dyskinesia scale, and CAPIT timing ON and OFF. All patients were videotaped before and after the surgery. Medications were kept on the same dosage after surgery. The patients were assessed before surgery, at 3 months, 6 months and 1 year. Results: Mean tremor scores improved from 9.0 to 5.3 (p=0.04) and rigidity scores from 12.8 to 7.6 (p=0.03) after the surgery. The intensity and duration of levodopa peak-dose dyskinesia were significantly improved. There was a trend for improvement in the OFF state of both the UPDRS motor score and CAPIT times. UPDRS motor score was reduced from 62.6 to 49.5 (p=0.13) and total CAPIT time from 59.6 to 48.2 (p=0.07). Bradykinesia, rigidity and tremor improved to a greater extent on the side contralateral to surgery, but there were ipsilateral effects. 2 patients who were unable to walk unassisted in the OFF state could do so after the surgery. Complications of pallidotomy include one with contralateral upper limb dystonia and depression.

Conclusion: Pallidotomy and pallidal stimulation ameliorates levodopa-dyskinesia and to some extent tremor, rigidity and bradykinesia. The effects are mainly seen on the side contralateral to surgery. Complications are minimized if microelectrode recording is used for accurate targeting.

O1.3. Mitochondrial disease: clinical, radiological and pathological observations

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We retrospectively reviewed 8 patients (6 males, 2 females) diagnosed to have mitochondrial disease clinically and pathologically. Six were Chinese, 1 Malay, and 1 Kadazan. The age of onset ranged from 8 to 28 years (mean 19.8 years), and disease duration prior to diagnosis ranged from 3 to 12 years (mean 6.3 years). The initial symptoms were ptosis, seizures, weakness, poor vision, stroke and deteriorating cognitive function. Six patients were clinically classified as MELAS (one overlapped with PEO), 1 as chronic progressive external ophthalmoplegia (PEO), 1 indeterminate. 2 patients with MELAS were a brother and sister while the rest had no significant family history.

The most common clinical manifestation was cognitive decline which was present in 7 (87.5%) patients. Epileptic seizures and stroke occurred in 6 (75%) patients. Five patients had focal, and one generalized seizures. Seizure frequency was high with 4 patients having more than 1 seizure/month (2 had history of status epilepticus). Stroke were predominantly posterior cortical or multiple infarcts presenting with homonymous hemianopia or cortical blindness. One patient had cerebellar ataxia. Headache was noted in two patients.

Bilateral optic neuropathy was found in 1 patient while 2 patients had bilateral ptosis and ophthalmoplegia. Partial deafness was present in 5 patients. Electroencephalography in 4 patients showed focal slow waves and sharp waves, and 1 focal slowing only. Neuroimaging was carried out in 6 patients, the most common finding was multiple posterior cortical infarcts. Serum lactate was
elevated in 2 out of 5 patients. Cerebrospinal fluid protein was elevated in one out of 3 patients. Muscle biopsies in 7 patients showed ragged red fibres in 6. Abnormal mitochondria was found in some but not all cases.

O1.4. Stroke in Dr Soetomo General Hospital, Surabaya (1990-1996)

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Stroke is the leading neurological disease resulting in hospital admissions. From January 1990 until December 1996, 8078 neurological patients were admitted to the neurological ward of Dr Soetomo General Hospital, Surabaya. Stroke was diagnosed in 4591 patients (56.83%) of the total neurological admissions. There were 2510 males (54.67%) and 854 (18.6%) young-adult (< 45 years) stroke patients.

Cerebral infarctions (CIs) were diagnosed in 56.37%, primary haemorrhages (ICHs) in 37.7%, subarachnoid haemorrhages in 0.92% and 5.01% were categorized as acute but ill-defined cerebrovascular diseases. Hypertension was the most important risk factor, recorded in 65.57% of patients with primary ICH and in 49.07% of patients with CI. The in-hospital mortality rate of stroke was high, with the ratio of stroke deaths to stroke admissions at 1:2.75. Primary ICHs had a significant higher rate of in-hospital mortality compared to CIs.

The high mortality rate calls for optimized care in stroke patients such as a better organization of stroke care with the setting up of stroke unit.

O1.5. Demographic factors of stroke patient at Hasan Sadikin Hospital, Bandung

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**Background and objective:** To identify the demographic factors and mortality of stroke patients inside and outside the Bandung city.

**Methods:** A retrospective study was done for patients seen between October 1995 to March 1996. Respondents were divided into two groups: inside city (IC) and outside city (OC) of Bandung. The data collected were age, sex, main clinical features, onset and stroke types. **Results:** Of the 220 stroke patients, age distribution of IC patients was between 60-74 years (49.2%) and for OC patients was 45-59 years (40.4%) (p=0.110). Males constituted 50.8% of IC and 60.6% of OC patients. The chief clinical features were: loss of consciousness in 28.6% of IC and 39.4% of OC patients; hemiplegia in 65.3% of IC and 44.7% of OC patients. The onset was ≤6 hours in 28.6% of IC and 17.2% of OC patients, between 6-24 hours in 23.8% of IC and 27.6% of OC patients (p=0.137). Haemorrhage stroke constituted 30% of IC and 34.6% of OC patients (p=0.055). Mortality in the hemorrhagic stroke was 52% in IC and 54% in OC patients (p=0.893).

**Conclusion:** There were more males cerebral hemorrhage, presentation with loss of consciousness and higher mortality in stroke patients who are from outside as compare to inside the city of Bandung.

O1.6. Lacunar Infarction

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**Background and Objective:** We investigated 150 patients suffering from supratentorial cerebral infarction (52 lacunar infarction and 98 cortical infarction) who were admitted to the Department of Neurology in Bach Mai University Medical Center in Hanoi, from February 28, 1991 to February 28, 1997. This is to answer two questions: (1) Is the lacunar syndrome valid for diagnosing lacunar
infarction?, (2) The risk factors in these two groups of patients. *Methods*: the study was performed prospectively in 52 patients with a first-ever lacunar infarct and 98 patients with a first-ever cortical infarct. *Results*: sensitivity and specificity of the lacunar syndromes in diagnosing lacunar infarction were 90% an 92% respectively. Positive and negative predictive values of diagnosing lacunar infarction in patients with lacunar syndromes were 85% and 95% respectively. Risk factor analysis showed no differences between either group of patients. *Conclusion*: these findings showed that the lacunar syndrome is a good clinical test for diagnosing lacunar infarction.

O1.7. Factors affecting the mortality of patients with intracranial haemorrhage: a preliminary study

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The mortality of intracranial haemorrhage is affected by many factors, including severe hypertension, initial Glasgow Coma Scale (GCS) score, motor deficit, complications such as respiratory tract infection, midline shift in CT Scan, haematoma volume, and the location of the haematoma. These factors also influence the therapeutic options in the individual patient. The aim of this study is to determine the mortality and morbidity of intracranial haemorrhage patients in the acute phase, and to determine the main factors which affect the outcome.

We examined 74 patients with intracranial haemorrhage admitted to Cipto Mangunkusumo Hospital from April 1996 until December 1996. All factors were analyzed on admission: blood pressure, respiratory rate, pulse rate, mean arterial blood pressure, GCS, motor deficit, abnormal ECG (left ventricular hypertrophy), CT scan findings (midline shift, volume and location of haematoma) and complications (infection of the respiratory tract). Independent variables were determined by univariate and multivariate statistical analysis. The acute phase mortality of the 74 cases was 20.3% with all deaths occurring within 3.2 days of onset. In patients with GCS <9, the mortality was 93.3%. In patients with severe hypertension (systolic ≥190 mm Hg), the mortality was 60%. Patients showing midline shift had a mortality of 86.6% and when haematoma volume was >60 cm³, the mortality was 46.6%.

In conclusion, low GCS, severe hypertension, midline shift in CT Scan, large haematoma volume solely or in combination were significant risk factors for the mortality of patients with intracranial haemorrhage.

O1.8. Multiple Cranial Nerve Palsy and Nasopharyngeal Carcinoma

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*Background and objective*: Nasopharyngeal carcinoma (NPC) is a common disease in Indonesia as well as southern China, Hongkong, Thailand, Malaysia and Singapore. The aim of this study is to analyze the occurrence of multiple cranial nerve palsy (MCNP) in patients with NPC seen in the Hasan Sadikin Hospital. *Methods*: Medical record of all patients with MCNP in the Neurological ward, and all patients with NPC in the Cancer Clinic, Hasan Sadikin Hospital, between January 1991 and December 1995 were reviewed. *Results*: NPC incidence increased with age and reached its peak incidence in the age group 41-60. The male:female sex ratio was 2.7 : 1. Of the 33 patients seen in the Neurology Ward with MCNP, 22 (66.66%) were proven to have NPC. Of the 346 patients in the Cancer Clinic diagnosed to have NPC, 97 (27.9%) had cranial nerve involvement; 51 (14.7%) with MCNP and 46 (13.2%) with single cranial neuropathy.

*Conclusion*: In patients with MCNP in Bandung, the probability of harbouring NPC is high. In patients with NPC, cranial nerve involvement is common.
O1.9. Arrival Time to Hospital after Stroke

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Aim: This study was performed to determine the arrival time to hospital after a patient notices symptoms of stroke in Singapore.

Design/Methods: Consecutive stroke patients admitted to our 1100-bedded general hospital between 1 March and 31 August 1996 for acute stroke were interviewed for this prospective study. In addition to patient demographics, data was collected using a standard questionnaire on the time of day, patient whereabouts, medical care sought and arrival time to hospital after symptom-onset. All had CT brain scans.

Results: Of 486 patients, 53% were male, 83.3% were Chinese, 10.1% Malay, 5.6% Indian and 1.0% other races. Mean age was 65.3 yr (26.2 - 94.5 yr). 85.0% developed symptoms at home, 6.8% at work and 8.2% in a public place. 44.7% arrived directly by ambulance and 27.8% directly by private or public transportation; the remaining saw a family doctor first before coming to hospital. 44% had lacunar, 35.2% non-lacunar and 20.7% hemorrhagic strokes. Mean arrival time was 29.9 hr (1SD 63.5 hr), median 5.1 hr. 41.4% arrived within 3 hr, 54.5% within 6 hr, 68.5% within 12 hr and 76.3% within 24 hr. 14.2% arrived after 48 hr. Patients arriving within 6 hr came by ambulance, had their stroke outside the home, or had a hemorrhagic stroke.

Conclusions: We conclude that a significant number of patients in Singapore arrive early to hospital after onset of stroke symptoms.

Oral Presentation 2: Epilepsy, Neurophysiology and Neuro-imaging

O2.1. Incidence of adverse reaction to antiepileptic drugs in a local population

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The objective of this paper was to study the incidence and profile of acute toxicity and idiosyncratic reactions to antiepileptic drugs (AEDs) started in low doses in our local population. 152 patients who were first referred to our Neurology clinic between 1.1.1994 to 31.3.1997 were studied. They were all on treatment (AEDs used were carbamazepine, phenytoin, sodium valproate, lamotrigine, ethosuximide and clonazepam) for at least 2 months. 11 patients (7.2%) developed adverse drug reactions (ADRs), the commonest of which was rash (3.9%), followed by drowsiness (2.6%) and hair loss (1.3%). Of the 98 patients on carbamazepine, 4 (4.1%) developed a rash and 3 (3.1%) drowsiness. With sodium valproate 1 (2.5%) had rash. One patient developed rash with lamotrigine. Only 7 (4.6%) required discontinuation of treatment due to the ADRs, i.e. all those with rash and 1 with hair loss. All resolved spontaneously. Drowsiness recovered with dose reduction and subsequent lower increments.

This study although involving a small number of patients, shows that AEDs if started in low doses and increased gradually, are well tolerated in our local population. It stresses the importance of initiation of therapy in small doses for better tolerability and therefore better patient compliance.
O2.2. Outcome profile of status epilepticus treatment in Hasan Sadikin Hospital, Bandung, Indonesia

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Background: Status epilepticus (SE) is a medical emergency that needs appropriate and timely treatment. The aim of this study is to evaluate the outcome and effectiveness of SE treatment protocol in DNHSH. Methods: All patients diagnosed to have SE were studied prospectively from January to May 1997. Results: Ten SE patients were included in this study. Six patients had a history of seizures prior to SE and their etiologies were: microangiopathy (1), febrile convulsion (1), abscess (1), head injury (1) and unknown (2). Four of these patients’ SE were controlled in <60 minutes, 2 were controlled with continuous diazepam infusion. The other 4 patients who did not have a history of seizures were all controlled in <60 minutes with single dose of i.v. diazepam. Their etiologies were: vascular (2), SLE (1), and unknown (1). Of the 8 patients with convulsive SE, 6 (75%) were controlled in <60 minutes. Of the 2 patients with non-convulsive type SE, all were controlled in <60 minute. After SE was controlled, no neurological deficit was found in 9 patients (90%) while 1 patient remained in coma. There were three mortalities. The causes of death were: septic shock (1), respiratory failure (1), cardiac arrest (1). Conclusion: The treatment protocol in DNHSH is effective in arresting the SE.

O2.3. Retrieval impairment in generalized tonic-clonic epilepsy and partial complex epilepsy

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Many epileptics complain of poor memory, especially those with partial complex seizures. Memory in epileptics are reportedly influenced by several factors like seizure-type, seizure frequency, age at onset of epilepsy, anti-epileptic medications, etc. However, the available data are somewhat confusing and do not provide any clear answer.

In order to evaluate memory retrieval in epileptic patients, the Selective Reminding Test was used in 44 epileptic patients (30 patients with generalized tonic-clonic epilepsy and 14 patients with complex partial epilepsy) who were treated in the outpatient clinic of the neurology department of Cipto Mangunkusumo Hospital for a period of one year. After completing the test, retrieval and storage scores were evaluated. Retrieval impairment was analyzed with respect to the following variables: seizures type, seizures frequency, age at onset and drug dosage (phenobarbital). In subjects with impaired retrieval, the memory process were analyzed.

Impaired retrieval was found in most subjects (75%). The mean retrieval scores were 7.77 for subjects with generalized tonic-clonic epilepsy and 8.36 for subjects with complex partial epilepsy. Retrieval scores were not influenced by seizure type, seizure frequency and drug dosage. Although it was not statistically significant, there was a tendency that retrieval impairment was greater in the group with early age at onset (less than 10 years). In analyzing the impaired memory processes, we discovered that although there was little difference in the initial storage and retrieval in both types of epilepsy, the storage/retrieval ratio were better in complex partial epilepsy than in generalized tonic-clonic epilepsy. In complex partial epilepsy, initial storage occurred earlier.

In conclusion, most epileptic patients had impaired retrieval; and it was not influenced by seizure type, seizure frequency, age at onset and anti-epileptic drug dosage. Impaired retrieval in epilepsy is probably a multifactorial disability. Also in generalized tonic-clonic epilepsy, there was impaired initial storage besides retrieval. This was probably caused by disturbance of attention.
O2.4. Induced sleep EEG recording in patients with complex partial epilepsy

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Objective: To study the occurrence of epileptic activity in induced sleep EEG in patients with complex partial epilepsy. Methods: 36 patients who were diagnosed clinically as complex partial epilepsy and had at least one seizure per year were included. The study was carried out from May to October 1996. All patients were taking antiepileptic drugs regularly. All the subjects under study had waking EEG followed by 14 minutes sleep EEG recording induced by taking 50 mg/kg of chloral hydrate. The EEG was recorded using the 10-20 International system using Neurofax EEG recorder (Nihonkohden). EEG was recorded with 14 channels with 2 channels using zygomatic electrodes to monitor the EOG. Results: The age of patients were 15-48 years. 2 patients were excluded from the analysis due to failure in inducing sleep. Epileptiform activities were found on waking EEG in 11 patients (32%) whereas 20 patients (59%) showed epileptiform activities during sleep.

Conclusion: Sleep EEG is more sensitive in demonstrating epileptic activity than waking EEG in complex partial epilepsy.

O2.5. Effects of auditory stimulation in patients with moderate closed head injury

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Background and Objective: Head injury is the most common inpatient diagnosis in the Department of Neurology, Cipto Mangunkusumo General Hospital. Auditory stimulation has been used as palliative therapy for head injury. This is a study to investigate the effect of different modalities of auditory stimulation on comatose patients. The patient’s pulse rate was used as parameter of the effect. Methods: A cross sectional of 54 closed head injury patients with GCS between 9-12. The patients were given four different types of auditory stimulation: bird sound, dangdut music, family voices and pop music. The patients’ pulse rate was measured before and during stimulation using Opto Electronic Pulse PU-711. Results: The patients’ profiles were as follows: 51 male and 3 female; education background was primary school (44%), junior high school (31%), senior high school (19%), university (4%). The age distribution was 10-20 years (19%), 21-25 years (41%), 26-30 years (17%), and 31-45 years (24%). The ethnic composition was: Javanese 36%, Sundanese 37%, Betawi 8%, Malay 6%, Batak 6% and Minang 2%. The pulse rates were: base (94.63/min), bird sound (96.93/min), dangdut music (98/min), family voices (98.82/min) and pop music (94.63%). Statistical analysis with student t test revealed significant change of pulse rate from family voice (p=0.001), dangdut music (p=0.005) and bird sound (p=0.043), but not to pop music (p=0.629). There was no significant relationship with education, age and ethnic group using multivariable analysis (p=0.23, 0.42, 0.84).

Conclusion: Bird sound, dangdut music and family voices stimulation were able to induce significant pulse rate changes in the comatose patients from moderate head injury. However, the effect of the various modalities of stimulation was individualized. The response to the auditory stimulation did not correlate with education background, age and ethnic group. Further investigations are needed to determine whether it is beneficial to arouse the comatose patients.
O2.6. Post-ictal single photon emission computed tomography (SPECT) in lateralization of epileptogenic zone

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Background and Objective: Accurate lateralization and/or localization of epileptogenic zone (EZ) non-invasively is important for epilepsy surgery. Among various non-invasive methods, extracranial EEG/video monitoring and structural MRI give the most useful information. SPECT has been shown to complement EZ lateralization. We review our results of post-ictal SPECT to see whether it provides independent lateralizing information. Materials and Methods: Patients with medically refractory focal epilepsy of presumed temporal lobe origin and had SPECT during inpatient video/EEG monitoring were included. 23 patients (15 females and 8 males) with a mean age of 24.5 years (range: 14-39 years) and a mean duration of epilepsy of 16.7 years (range: 3-37 years) were studied. SPECT imaging was performed with technetium-99m labelled hexamethyl-propylene-amine-oxime (HMPAO) injected at patient’s bedside within 10 minutes after the end of seizure. These patients were then scanned with a twin-head gamma camera. Temporal lobectomy was performed in 17 patients of which 12 were seizure free and 5 had >90% reduction in seizure frequency.

Results: A total of 27 post-ictal SPECT studies were performed (19 patients had one study and 4 patients had two studies). HMPAO was injected between 0:21 minutes and 8:26 minutes (mean: 2:13 minutes) after the end of EEG seizures. 21 of the 27 studies (77.7%) showed unilateral perfusion abnormalities: 10 had hypoperfusion in the entire temporal region, 7 had hyperperfusion, and 4 had a mixed pattern of hypoperfusion in the lateral & hyperperfusion of the mesial temporal region. 3 studies (11.1%) showed bilateral hyperperfusion in the temporal regions while 3 (11.1%) were non-conclusive. When EZ can be lateralized from EEG data and/or clinical information, SPECT results were concordant. In addition, SPECT provided lateralizing information in 3 of 5 studies where EEG and Clinical lateralization were not possible.

Conclusion: There was overall good agreement between clinical, EEG and SPECT findings, as well as surgical outcome. Our findings support the usefulness of post-ictal SPECT in lateralization of EZ.

O2.7. Determining the accuracy of qualitative assessment of hippocampal asymmetry

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Objective: To determine the sensitivity and accuracy of qualitative, visual assessment of hippocampal asymmetry and to create a procedure by which novice observers can calibrate their assessment of these asymmetries. Background: The use of MR of the hippocampus to support a diagnosis of mesial temporal lobe epilepsy is well established. Experienced readers can correctly classify most patients with significant hippocampal asymmetries but quality control is an issue when less experienced readers interpret these images. The accuracy of visual quantification of interside area differences has not been quantitatively assessed. Design/methods: Using a Siemens 1.0T scanner, we obtained 2mm thick tilted coronal MPRAGE MR images of the brains of 20 healthy volunteers. TI/TR/TE/flip angle : 300/10/4/8 was used. FOV was 25cm; 256*192 image matrix. The hippocampal formations were independently traced by three observers. After tracing, each coronal slice contained an overlay of a pair of hippocampi. The interiors of these were filled in to form pairs of silhouettes. 120 of such pairs, taken from different parts of the hippocampal formation within and across subjects, were then assessed for magnitude of asymmetry. Silhouette pairs of different shapes and sizes were assessed. Pairs were graded for interside area differences in 5% steps. Asymmetries of > 20% were classified together. Previous studies and our own normative data show that asymmetries of this magnitude are abnormal. The observers assessments were compared to area values obtained by automatic pixel
counting. The silhouettes were subsequently used to develop consensus among the observers on how differences in landmark selection could be minimized.

Results: Of 89 pairs where there was at least a 5% interside difference in area, we were able to detect at least this level of asymmetry in 68.5%, 75.3% and 79.8% of occurrences. Two observers made errors where the right hippocampus was assessed as between 5-10% smaller than the left when it was in fact 10% larger. There were 31 pairs of silhouettes where there was a >20% interside difference in area. 25.8%, 51.6% and 61.3% of asymmetries of this magnitude were appropriately classified. There were no false positive detections or directional errors when interside asymmetries were >20%. The silhouette pairs facilitated consensus development on landmark selection and reduced inter-observer differences in measuring hippocampal volumes by as much as 30%.

Conclusion: Qualitative comparison of hippocampal silhouettes is sensitive to the presence of asymmetry and can be performed without generating clinically significant false positive information. However, underestimation of asymmetry occurs and false negatives in a clinical setting may result in the need for more tests of localization. The technique outlined here was useful in calibrating the observer’s eyes and can be used to train new observers to assess and quantify asymmetries of irregularly shaped brain structures.

O2.8. Effect of temporal lobectomy on seizure frequency and antiepileptic drug requirement in patients with medically refractory focal epilepsy

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Background: Temporal lobectomy and/or amygdalo-hippocampectomy (TL/AH) have been shown to improve seizure control in approximately 80-90% of patients with medically refractory temporal lobe epilepsy (TLE). Anti-epileptic drug (AED) could be taken of after surgery in some patients. Objective: To determine the effect of TL/AH on seizure frequency and AED requirement in a group of local patients with medically refractory focal epilepsy of presumed temporal origin. Patients and Methods: 39 patients (21 females and 18 males) who had TL/AH and had at least one year post-surgery follow-up were included. Their mean age was 28.6 years (range: 17-42 years) and the mean duration of epilepsy was 19 years (range: 5-40 years). They had ≥one complex partial seizure or generalized tonic-clonic seizure per month before surgery. 4 patients (10.2%) were on 1 AED, 29 (74.4%) were on 2 AEDs and 6 (15.4%) were on 3 AEDs. All had structural MRI examination, in-patient extracranial EEG with video monitoring, intracarotid amobarbital procedure, psychiatric evaluation and neuropsychological testing. 19 patients had SPECT studies, 2 had subdural and one had bitemporal depth electrode implantation. 20 patients had a left, and 19 had a right TL/AH when EEG and non-EEG information indicated temporal origin of habitual seizures. None had serious complication. 2 patients had re-operation 2-3 years after the initial surgery because of inadequate mesial resection. Histologically, 29 had mesial temporal sclerosis (MTS), 4 had vascular malformation (VM), 3 had both MTS & AVM, 1 had encephalomalacia, 1 had low grade glioma and 1 was non-conclusive.

Results: By the end of May 1997, these patients had been followed up for an average of 2.8 years (range: 1.4-9.9 years). 22 patients (56.4%) were completely seizure-free for at least the last 12 months (including 2 patients who had re-operation). 5 (12.8%) had aura only, 4 (10.3%) had >90% reduction while 8 (20.5%) had <90% reduction of pre-operative seizure frequency. 15 patients (38.5%) were taken off AED (14 patients were seizure free while one had aura only). 15 patients (38.5%) were taking 1 AED at a reduced dosage (7 were seizure free, 4 had aura only, 3 had ≥90% reduction and 1 had <90% reduction in seizure frequency) while 9 (23.1%) continued to take ≥2 AEDs.

Conclusion: In approximately 80% of medically refractory TLE patients, TL/AH reduced their seizure frequency or rendered them seizure-free for at least one year. AED could be stopped in about 2/5 and reduced in another 2/5 of patients after surgery.
O2.9. MRI and MRA in patients with hemifacial spasm

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Background: Structural abnormality compressing on the facial nerve is a well recognized cause of hemifacial spasm (HFS). High resolution magnetic resonance imaging (MRI) and magnetic resonance angiography (MRA) are increasingly being used to investigate its etiology.

Objective: To elucidate the underlying etiology of patients with HFS using high resolution MRI and MRA. Methods: Patients with HFS and had MRI & MRA studies between June 1994 to February 1997 at Singapore General Hospital were included. MRI was performed using Magneton Siemens 1.0 Tesla machine. MRA was obtained using three dimensional Time of Flight (TOF) sequence. The MRI and MRA films were read independently by two of the authors (neuroradiologists) blinded to the side of the hemifacial spasm.

Results: 23 patients, 15 females and 8 males, with a mean age 52.1 years (range: 29-79 years) were included. The mean duration of symptoms was 1 year (range : 0.5-10 years). Sixteen patients (69.6%) had left and 7 patients (30.4%) had right HFS. 11 patients (47.8%) had a vascular abnormality in the form of tortuous vessel, ectatic vessel or a vascular loop touching or compressing the ipsilateral facial nerve. The commonest vessels involved were anterior inferior cerebellar artery (AICA) followed by vertebral artery (VA) and basilar artery (BA). Another 2 patients (8.7%) had lacunar infarcts in the basal ganglia while the rest had no structural abnormality.

Conclusions: MRI and MRA are useful in elucidating possible etiologies in patients with HFS. The commonest structural abnormality was vascular compression of the facial nerve by AICA, VA and BA.

Oral Presentation 3: Infection and Inflammatory Diseases of the Nervous System

O3.1. Tuberculous meningitis: a 5-year review

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A retrospective analysis of case records of patients diagnosed with tuberculous meningitis (TBM) and treated at Neurology Department, Kuala Lumpur Hospital over a 5 year period is presented. Twenty seven adults ranging from 14 to 59 years (mean 29.4) whose racial distribution was as follows - five non-Malaysians (4 Indonesians, 1 Burmese), five East Malaysians and the remainder West Malaysian of which 10 Malays, 4 Chinese and 3 Indians. Diagnosis of TBM was based on the following criteria: [1] Positive isolation of acid-fast bacilli from cerebrospinal fluid; [2] Aseptic meningitis with concurrent extracranial TB infection; [3] Aseptic meningitis with radiological features consistent with TBM and had satisfactory response to anti-TB therapy. Diagnosis by first criterion was considered definite and fulfilled by seven patients, whilst nineteen patients satisfied second criteria and twenty-three patients the third criterion. Two patients were in Stage I, sixteen in stage II and nine stage III of disease at presentation. Treatment according to Department protocol includes four antituberculous drugs (Streptomycin, Rifampicin, Isoniazid, Pyrazinamide or Ethambutol) for two months followed by at least ten months of two anti-tuberculous drugs. Short course steroid therapy was given for patients presenting in stage II an III of disease. Eleven patients required neurosurgical intervention. Mortality rate was 14.8% and of the surviving patients on follow-up, 64.8% had residual neurological disability. Poor outcome was associated with prolonged symptoms prior to diagnosis and advanced disease at presentation.
O3.2. Profile of cerebrospinal fluid in treated tuberculous meningitis patients

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Background objective: With the treatment of tuberculous meningitis (TBM), cerebrospinal fluid normalizes gradually. This study aims to study the course of the CSF parameters in TBM patients under treatment.

Methods: Serial CSF examination was done weekly after the onset of treatment. Cell count, protein and glucose concentration were measured. The cell count was estimated by light microscope using a Fuch-Rosenthal counting chamber. The protein concentration was estimated by a colorimetric (Biuret) method and glucose was estimated by a glucose oxidase method.

Results: During a three year period (from 1st January 1994 to 31st December 1996) 54 patients with TBM had 3 or more weekly CSF examinations. The average cell count showed a rise in the second week followed by a gradual fall thereafter, although the counts usually remained above normal level at the fourth week. Thirteen patients showed a predominance of polymorph in the first CSF examination. However, by the third week, only 3 patients continued to have predominance of polymorph. Eleven patients had a clear CSF colour in the first week. During second week, CSF in 8 patients became xanthochromic. Average protein content showed a rise in the second week then gradually fall in the third and fourth week. Glucose content rose gradually over time.

Conclusion: Fluctuations in the CSF cell count and the protein concentration during the first three weeks of the therapy are not unusual in TBM under treatment.

O3.3. Factors influencing outcome of tuberculous meningitis patient during hospitalization in Hasan Sadikin Hospital

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Background and Objective: Tuberculous meningitis (TBM) is one of the most common CNS infection in developing countries. There in significant morbidity. The purpose of the study is to determine the factors determining the outcome of the treatment. Methods: 138 adult patients with TBM seen in the year 1994-1996 were retrospectively analysed. Statistical significance was determined by Chi-square and Fisher’s Exact Test. Results: There were 37 patients (26.8%) in stage I, 76 patients in stage II (55.1%) and 25 patients in stage III (18.1%). 124 patients (89.9%) were <50 years of age while the rest were ≥50 years old. Significantly higher mortality was seen in the advanced stage (p<0.001), the presence of complications and accompanying diseases (p<0.001), and the use of RHZ rather than RHEZ antibiotic regime (p=0.019). On the other hand, age was not a significant factor for high mortality. As for persistent neurological sequelae, advanced stage (p<0.001) and presence of complications (p=0.003) were significant factors, whereas age and the use of RHEZ antibiotic regime were not statistically significant.

Conclusions: The outcome of TBM treatment is dependant on the stage of disease during diagnosis and the presence of complications. Future efforts should thus be directed to these two areas.
O3.4. Outcome of tetanus patients with respiratory dysfunction

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Background and objective: Some studies have quoted a tetanus mortality at 25 to 30%. The main cause of death in tetanus was respiratory complication. This study aims to evaluate the role of tracheostomy in decreasing the mortality rate.

Methods: 110 tetanus patients who manifested respiratory dysfunction treated in the Department of Neurology, Hasan Sadikin Hospital during the period between January 1st 1995 and March 30th 1997 were studied. The patients were divided into two groups, those treated with and without tracheostomy. The outcome of the two groups was analysed statistically by Chi square test and Fisher exact test. Results: There were 13 patients (11.9%) in stage I, 12 (10.9%) in stage II, 33 (30%) in stage III, 29 (26.3%) in stage IV and 23 (20.9%) in stage V. Mortality increased significantly in the higher stages, they were: stage III (15.1%), stage IV (48.2%), stage V (91%). Without tracheostomy, all patients in stages III, IV, and V died.

Conclusion: Tracheostomy significantly increased the patients survival. The mortality was also higher in the patients with higher clinical stage.

O3.5. Dysautonomia in tetanus patients

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Background and objective: Tetanus incidence and mortality is still high in developing countries. Dysautonomia presents the greatest difficulty in management. This is a report to correlate the presence of dysautonomia to mortality. Subjects and methods: All patients with a diagnosis of tetanus admitted to the Hasan Sadikin Hospital during the period January to December, 1996 were included in this study. The data of the patients were obtained from the medical records and retrospectively analyzed. Results: Of the 50 patients seen during the period of the study, the overall mortality was 32%. The clinical staging of the patients were: stage I: 7 (14%), stage II: 25 (50%), stage III: 9 (18%) and stage IV: 9 (18%). There was no mortality among the patients in stages I and II. Of the 9 patients in stage III, there were 7 mortalities. 3 patients died of dysautonomia, 1 died of respiratory failure, and 3 died from dysautonomia and respiratory failure. All the 9 patients in stage IV patient died; 8 died from dysautonomia and 1 of dysautonomia and respiratory failure.

Conclusion: Dysautonomia is an important cause of death in tetanus patients.

O3.6. Peripheral autonomic nerve dysfunction in asymptomatic leprosy contacts

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Early leprosy is hard to detect and there are no clear definitions or guidelines for diagnosis. Some investigations suggest that earliest nerve damage occurs in autonomic nerve fibres (small, poorly or unmyelinated). In endemic areas, subclinical autonomic dysfunction may be a manifestation of infection with M. Leprae and possibly allow detection before progression to clinical disease. To test this we performed vasomotor reflex testing (VMR) in 36 asymptomatic leprosy contacts (24 household contacts, 12 hospital contacts) and 47 age- and sex-matched controls in Pokhara, Nepal. Mean age was 30 years, two thirds were male. A laser doppler velocimeter concomitantly measured microvascular blood flow and skin surface temperature. Flow reduction following an inspiratory
gasp was recorded from finger and toe tips. Mean percent reduction was 57.8 (standard deviation 14.6) among household contacts, 61.9 (17.5) among hospital contacts and 66.8 (7.8) among controls (p=0.001 by analysis of variance). Prevalence of abnormal tests was 54% among household contacts, 42% among hospital contacts and 15% among controls (p=0.0005 by chi-square test for trend). We conclude that subclinical autonomic neuropathy is common among healthy contacts of leprosy patients. Prospective studies are needed to clarify to what extent abnormal VMR tests predict the risk of progression to clinical disease.

O3.7. Campylobacter Jejuni infection and Guillain-Barré syndrome in Malaysia

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The Guillain-Barré syndrome (GBS) is a heterogeneous disorder with several clinical subtypes. In northern China, an “acute motor axonal neuropathy” (AMAN) variant has been described. An association between antecedent Campylobacter Jejuni and the axonal form of GBS has been suggested. Malaysia is a multiethnic Southeast Asian nation and since 1995, patients with GBS admitted to the University Hospital, Kuala Lumpur have been studied clinically and electrophysiologically. Presence of preceding C. Jejuni infection was determined bacteriologically and serologically. Sera from age and sex matched hospital controls without diarrhea or neurological illness were also obtained. Until the end of 1996, a total of 27 patients, 19 males and 8 females were seen. They ranged from 2 to 73 years (mean 33.78 years). Twelve were Chinese, 9 Indian, 5 Malay and 1 Bangladeshi. 25 patients had electrophysiological tests between 6 days to 4 weeks after the onset of illness (mean 1.9 weeks). Based on the criteria of reduced compound muscle action potential (CMAP) amplitude (<80% normal) and electromyographic evidence of axonal degeneration, 2 (8%) patients had primary axonal degeneration. 3 (12%) had mixed demyelination and axonal degeneration. 15 (60%) patients were classified as demyelination, 5 were unclassifiable and 1 normal. 2 patients were not studied. Of the 25 patients in whom sera were obtained, 6 (24%) were C. Jejuni positive. All controls were negative. No patient had a positive stool culture. There was no correlation between C. Jejuni positivity and axonal neuropathy: 4 patients had demyelinating neuropathy and 2 were unclassifiable.

O3.8. A study of patients with multiple sclerosis

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Objective: To characterize the clinical features of patients with multiple sclerosis (MS) seen at Singapore General Hospital. Background: Genetic susceptibility and environmental factors influence the prevalence and clinical manifestations of MS. Since MS is rare in Southeast Asia, regional descriptions of this disease are rare.

Design and Methods: All patients examined at Singapore General Hospital with a diagnosis of MS or Devic’s disease between January 1993 and December 1996 were retrospectively reviewed. Information regarding demographic data, clinical presentation and course, and paraclinical investigations was obtained for those patients who fulfilled criteria for clinically definite MS.

Results: Of the 21 patients with clinically MS, 16 were women and 5 were men. The patients were predominantly Chinese (67%), Indian (14%), and Malay (10%) in ethnic origin. The mean age of onset was 30.6 years with a range from 13 - 50 years. Predominant clinical symptoms at presentation and during the course of illness included optic neuritis and transverse myelitis. Forty percent of those tested had positive ANA’s.

Conclusions: Optic-spinal symptoms were clearly the most common form of MS. Based on the significant percentage of positive ANA’s, we suggest that an evaluation for an underlying collagen vascular disorder be performed on all patients suspected to have MS.
O3.9. Multiple sclerosis: a retrospective review of 30 cases

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Aim: To study the clinical features of patients with Multiple Sclerosis (MS) seen at Tan Tock Seng Hospital. Methodology: Case records of all patients with MS seen in the last 3 years are studied.

Results: (a) Patient characteristics: 30 patients are studied; only 3 are males. The race ratio is 23 Chinese: 2 Malay: 1 Indian: 1 mixed-descent: 3 Caucasian. (b) Clinical features: 22 patients are diagnosed to have clinically definite MS, 5 have clinically probable MS and 3 possible MS. Relapsing-remitting MS is the commonest pattern of disease (22); followed by primary-progressive MS (7) and progressive-relapsing MS (1). Average age of onset of disease is 36.3 years, average number of relapses 5.95 and relapse rate 1.21/year. The sites of involvement are spinal cord 80%, optic nerve 43%, brainstem 32%, cerebellum 23% and cortex/subcortical structures 21%. Transverse myelitis is the commonest initial presentation. (c) Investigations: Evoked potentials were useful in detecting disease in clinically uninvolved sites in 32% of cases. MRI showed typical features in 25 out of 27 patients; 16 in asymptomatic areas. CSF oligoclonal band is present in only 1 out of 9 patients tested. (d) Treatment: Almost all relapses are treated with i/v methylprednisolone or i/m ACTH. 3 patients receive maintenance therapy; 2 azathioprine and 1 beta-interferon. Baclofen and antidepressants are the commonest symptomatic treatment. (e) Complications: Urinary retention is commonest (30%) followed by urosepsis (20%) and depression (13%). (f) Present status: Information is available for 22 patients of whom 1 has passed-away, 2 are bed-ridden, 2 are wheel-chair bound, 10 need aids or assistance to ambulate and 7 are functionally normal.

Conclusion: MS in Singapore is similar to that seen in other Oriental populations, in particular the predisposition to affect spinal cord and optic nerves.

Oral Presentation 4: Cerebrovascular Disease

O4.1. Impact of ethnicity on stroke profile in Indonesia

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Indonesian population is multi-ethnic in character. This study was performed to determine clinical differences in stroke related to ethnicity in the Indonesian population. We prospectively evaluated 1104 consecutive patients of different ethnic origins (386 Javanese, 200 Sudanese, 132 Malay, 75 Chinese, 90 Dayak, 57 Bugis, 49 Balinese, 38 Manado, 50 Batak, 45 Padang) presenting to participating hospitals all over Indonesia, with acute stroke during the period October 1996 to March 1997. All the patients were assessed by the same standard stroke protocol. The preliminary analysis shows that there are significant clinical differences among the different ethnic groups studied.

O4.2. Risk factors for stroke in the middle age

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Background and objective: The risk factors of stroke differ according to different age group. The peak of a person’s career is usually at the middle age. Stroke occurring during this stage of life is thus particularly disastrous. The study aims to identify the risk factors for stroke in the middle aged patients. Methods: All stroke patients of 45-59 years of age admitted to the Hasan Sadikin Hospital, Bandung, from January 1st to April 30th were included in this study. Patients who did not have CT scan were excluded from the study. The patients’ characteristics and the possible risk factors were
identified. **Results:** There were 44 patients, 20 males and 24 females. 11 patients (25%) had intracerebral haemorrhage, 23 patients (52.2%) had athero-thrombotic infarct, out of which 22 were in the carotid system, and 1 in the vertebrobasilar system. 7 patients (16%) had cardio-embolic infarct, 2 patients (4.4%) had lacunar infarct and 1 patient (2.2%) had subarachnoid haemorrhage. In 12 patients, the stroke were recurrent (16%). Hypertension was the most important risk factor, seen in 29 patients (66%). Among the patients with hypertension, 3 patients also had diabetes mellitus, 2 had history of smoking and 1 had family history of stroke. Heart disease was found in 7 patients (16%). Diabetes, raised hematocrit, hypercholesteronemia were other risk factors. 5 patients (11%) did not have any obvious risk factors.

**Conclusion:** The main risk factors for stroke in the middle age patients seen at Hasan Sadikin Hospital, Bandung were hypertension and heart disease.

**O4.3. Lipoprotein (A) in ischaemic stroke patients**

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Lipoprotein (a) [Lp(a)] was found by Kare Berg in 1963 and was thought to be a genetic variant of LDL. During the nineteen eighties, increase of Lp(a) was found to be associated with premature myocardial infarction, stroke, and retinal artery occlusion. The purpose of this study was (i) to study the relationship between Lp(a) plasma level and ischaemic stroke; (ii) to find the relation of any risk factors like total cholesterol, LDL and HDL cholesterol, triglyceride, systolic and diastolic blood pressure to ischaemic stroke. We studied 50 ischaemic stroke patients and 50 controls. Independent variable of the study was Lp(a), while the moderator variables were factors mentioned above. **Results:** There was a significant difference of mean Lp(a) plasma level between the patients (48.1mg/dl) and controls (15.2 mg/dl) (p<0.05). By logistic regression analysis it was found that other than HDL ratio, Lp(a) was an independent risk factor for ischaemic stroke.

**Conclusion:** Lp(a) was an independent risk factor for ischaemic stroke.

**O4.4. Study of blood fibrinogen concentration in ischaemic stroke and control**

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**Objective:** This is a case control study to determine whether serum fibrinogen concentration is a risk factor for ischaemic stroke. **Methods:** The patient group consisted of 34 ischaemic stroke patients, 25 of them were males (73.52%) and 9 females (26.48%). All patients had CT scan of the brain. Fibrinogen concentration was measured twice with an interval of 10 days. The controls consisted of equal number of age, sex matched non-stroke patients from the neurological ward of the Cipto Mangunkusumo Hospital, Jakarta.

**Results:** There were 19 ischaemic stroke patients with high fibrinogen concentration(>400mg/dl), while the corresponding number in the control group was 5. The difference was statistically significant (P=0.01). The difference in fibrinogen level in the first and the tenth day of the stroke patients was not statistically significant at P<0.05 (Odd ratio: 7.35).

**Conclusion:** This study showed that fibrinogen concentration in ischaemic stroke was significantly increased. This rise was found not to be a reaction to the stroke, but was already high when the ischaemic event occurred. There was no correlation between sex and fibrinogen concentration.
O4.5. Correlation between cigarette smoking and serum fibrinogen level in acute ischaemic stroke

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Smoking has been considered to be one of the preventable risk factors of stroke but its mechanism in causing stroke is still controversial. There are many studies showing that smoking is strongly related to high serum fibrinogen levels in acute ischaemic stroke patients. This case control study was conducted to assess the effect of smoking on serum fibrinogen level in acute ischaemic stroke patients hospitalized in neurological ward of the Dr Cipto Mangunkusumo Hospital, Jakarta from October 1995 until July 1996. We divided the subjects into two categories: (i) Group 1: 35 stroke patients who were smokers; (ii) Group 2: 35 stroke patients who were non-smokers (control). Serum fibrinogen serum level was measured at the latest on the 5th day after stroke onset with chromotimer method. Results: Increased serum fibrinogen level was found in 85.7% individuals in Group 1 and 37.1% in Group 2. Mean serum fibrinogen level in Group 1 was 498.9 (SD - 179.6), and Group 2 was 349.1 (SD=125.4). There was significant differences between Group 1 and Group 2 (p=0.000, Odd ratio=13.1), with correlation between smoking and raised level of fibrinogen (95% CI=3.7-45.6, p=0.0001). There was no relation between age, amount of cigarettes consumed and duration of smoking with mean serum fibrinogen level (p>0.005).

Conclusion: Smoking is correlated with high serum fibrinogen level in patients with ischaemic stroke. High fibrinogen may thus be a mechanism whereby smoking causes stroke.

O4.6. The influence of smoking on the level of protein S in acute ischaemic stroke

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Background and objective: Smoking carries an increased risk for ischaemic stroke. It has been postulated that the increased risk was mediated through its influence on the coagulation cascade involving protein S and C (Barinagarrementeria 1994). This is a case control study to evaluate the effect of smoking on protein S in ischaemic stroke patients. Methods: The study subjects consisted of 45 patients with the first episode of acute ischaemic stroke confirmed by brain CT scan who were smokers. The control consisted of 45 patients with ischaemic stroke who were non-smokers. Patients with diabetes mellitus, on anticoagulation, family history of stroke and liver disease were excluded. Protein S activity were measured within 1st week of stroke onset by using coagulometric methods. Results were considered to be normal if the protein S activity was 76-121.2%, and decreased if protein S activity was below 76%. The protein S reagent by Behringwerke AG Germany (1994) was used as reference. Results: Mean age for the smokers were 57.2 ± 7.5 years, it was 56.9 ± years (p=0.421) for the non-smokers. All the study subjects and controls were male. The mean duration of smoking was 15.6 ± 8.1 years. Mean protein S activity in smokers was 50.6% while in non-smokers, it was 85.06% (p=0.0001). Thirty-four of 45 the smokers had decreased protein S activity while 8 of 45 non-smokers had decreased protein S activity (Odd ratio=14.3).

Conclusions: Smokers had significantly decreased protein S activity in acute ischaemic stroke. The increased risk of smoking for stroke may be mediated through changes in protein S.
O4.7. Prevalence of anticardiolipin antibody level in acute ischaemic stroke patients in Cipto Mangunkusumo Hospital, Jakarta, Indonesia

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Background and objective: High levels of circulating anticardiolipin antibody (ACA) has been reported to be associated with up to 46% of ischaemic stroke in young adults (Brey 1990). The study aims to investigate the role ACA among the Indonesians with young stroke.

Methods: The study subject consisted of 40 consecutive patients of <50 years of age with first attack of acute ischaemic stroke. The infarct were confirmed by CT scan. All patients with history suggestive of auto-immune diseases or has taken steroid 3 months prior to the development of stroke were excluded from the study. Sera were obtained for the test within the 1st week of stroke and repeated on the 5th week, when the initial result showed elevated IgG or IgM ACA. Results were interpreted as positive if IgG>20GPL or IgM>20MPL. ELIZA method was used for the estimation.

Results: Of the 40 patients studied, 27 were male (65%) and 13 were female (32.5%). The mean age of the male patients was 44.3 ± 5.7 years. The mean age of the female patients was 42.9 ± 8.2 years. The age range of the 40 study subjects was 27-50 years. For the estimation of ACA in the 1st week, 26 patients (65%) had elevated IgG ACA (mean elevation 47.5 ± 28.1 GPL), and 5 (12.5%) had elevated IgM (mean elevation 46.5 ± 18.8 MPL). For the ACA estimation in the 5th week, the level of IgG ACA decreased in 23 of these 26 patients (88.5%). The mean decrease was 27.8 ± 18.8 GPL. In 3 of the 26 patients (11.5%), the IgG ACA remained high. The IgM ACA decreased in 4 out the 5 patients (80%). The mean decrease was 26.5 ± 15.3 MPL. In one patient, the IgM ACA remained high. There was no statistical difference between the male and female patients in IgG or IgM ACA during 1st week and 5th week.

Conclusion: Our results suggest that the prevalence of IgG ACA in young ischaemic stroke patients in Jakarta was higher than expected. Whether the elevated IgG ACA level was a reactive response of acute stroke or was causative factor of stroke need further study.

O4.8. Reactive hyperglycemia in acute stroke

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Background and objective: There has been no report on the change of fasting blood glucose level in acute stroke patients in Indonesia. There has also been no report on the association between reactive hyperglycemia and the severity in the acute phase of stroke. This study attempt to address these issues.

Methods: This is a cross sectional study on 95 non-diabetic patients’ 5 days serial fasting blood glucose level, to study the association between reactive hyperglycemia and the severity of stroke, for patients admitted in Dr Cipto Mangunkusumo General Hospital, Jakarta, during the period of July 1991 - December 1992. All patients had onset of stroke of <48 hours. They consisted of 53 haemorrhagic and 42 ischaemic stroke. Reactive hyperglycemia was defined as fasting blood glucose of >110mg/dl. The severity of stroke was measured by the Glasgow Coma Scale (GCS) and early/first week mortality. Decreased level of consciousness was classified as severe (GCS 3-5), moderate (GCS 9-12) and mild (13-15).

Results: In 5 days of observation, reactive hyperglycemia was observed in 54.7% haemorrhagic and in 47.6% ischaemic stroke cases. In haemorrhagic stroke cases, there was significant increase of the blood sugar level on the second day. The mean fasting blood glucose levels on the first 5 days were 97.0 mg/dl, 104.1 mg/dl, 99.14 mg/dl, 91.08 mg/dl and 91.4 mg/dl. In ischaemic stroke cases, there was no significant changes, i.e. 82.38 mg/dl, 85.48 mg/dl, 91.79 mg/dl, 90.71mg/dl and 90.27 mg/dl. The mean blood glucose level in haemorrhagic stroke patients with reactive hyperglycemia
was 124.1 mg/dl, and in patients without reactive hyperglycemia 78.9 mg/dl. While in ischaemic stroke patients with reactive hyperglycemia the mean blood glucose level was 110.8 mg/dl and in patients without reactive hyperglycemia, 76.0 mg/dl, respectively. There was a significant inverse relationship between the GCS and reactive hyperglycemia in haemorrhagic stroke cases (X² for linear trend=5.29, p=0.01), as well as in ischaemic stroke cases (X² for linear trend=6.90, p=0.006). Reactive hyperglycemia was also found to have significant association with increased first week mortality in haemorrhagic stroke cases (OR=4.51; 95% CI=1.44-14.82), but not in ischaemic stroke cases (OR=2.50; 95% CI=0.4-15.43).

Conclusions: In 53 haemorrhagic stroke patients studied, the average fasting blood glucose level increased on the second (and third) day, decreased to normal levels on the following days. Reactive hyperglycemia was associated with the decrease of consciousness in acute phase of stroke. In haemorrhagic stroke cases, reactive hyperglycemia was found to have significant association with early/first week mortality.

O4.9. The international stroke trial in Singapore: lessons for future studies

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The International Stroke Trial was a randomized, open controlled trial of aspirin and sub-cutaneous heparin, both practicable and widely available therapies, in acute ischaemic stroke. A total of 19,436 patients were recruited from 467 hospitals in 36 countries over 3 years. The final results have recently been published (Lancet 349 : 1569-81).

In Singapore, 140 patients were randomized in 6 months from 2 hospitals. The racial distribution was representative of our multi-racial society but there were several differences between our patient population and those from the main study. In particular, Singaporean patients were younger, had more lacunar infarcts and less atrial fibrillation. Additionally, the mean delay to randomization was 29 hours whereas 66% of patients in other countries were entered within 24 hours.

More well designed stroke trials are necessary to improve treatment of this devastating disease. Regional participation in such trials is important since ASEAN patients may differ in clinical characteristics. Several issues such as public education and organization of stroke services need to be addressed so as to expose our patients.

Poster Presentation

P1. The mental status examination in acute phase stroke inpatients in Hasan Sadikin Hospital, Bandung

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Background and objective: Stubb-Black Mental Status Examination has been reported to be able to localize cerebral lesion. The aim of the study is to assess the efficacy of the examination for lesion location in stroke patients.

Methods: Stubb-Black Mental Status Examination was applied to all the patients admitted for first stroke in the Hasan Sadikin Hospital during the period March to April, 1997. The inclusion criteria were: full alertness, had at least 3 years of elementary school education, not suffering from subarachnoid hemorrhage or vertebrobasilar stroke.

Results: Of 78 stroke patients admitted during the study period, 18 patients fulfilled the criteria and was studied. The study subjects consisted of 7 female and 11 males, with a mean age of 52.2 years. 15 patients had elementary school education. Other than impairment in recall which was
correlated with intracranial bleeding (p=0.019), there was no significant correlation found between higher cortical function impairment and the type as well as location of stroke. The examination was found to be time consuming and exhausting to many patients.

Conclusion: There was no significant correlation between higher cortical function deficits based on Strub-Black Mental Status Examination and the type as well as location of stroke. This may be due to inadequate sample size. The test was time consuming and exhausting to many patients.

P2. The accuracy of the Siriraj Stroke Score versus clinical diagnosis

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Background and objective: CT scan examination is able to differentiate definitely whether a stroke is due to supratentorial hemorrhage from infarct. Unfortunately CT scan is not always available or affordable in clinical practice in the Developing World. Pounvarin et al (1991) has developed the Siriraj Stroke Score to differentiate hemorrhage and infarct clinically. This study aimed to validate the Siriraj Stroke Score (SSS) and to compare it with clinical diagnosis (CD).

Methods: This is a prospective study on 83 consecutive stroke patients admitted to the Hasan Sadikin Hospital from January to April 1997 with CT scan. Results: Using the SSS, the sensitivity was 100% for infarction and 80% for intracranial haemorrhage with 96.4% overall predictive accuracy. Using CD, the sensitivity was 92.5% for infarction and 80% for intracranial haemorrhage with 89.2% overall predictive accuracy. Twenty eight patients (33.7%) had SSS between -1 and +1, which indicates an equivocal result. This is higher proportion than Pounvarin’s report of 16%, causing as a whole the SSS had a lower value than CD.

Conclusion: SSS is a reliable diagnostic tool to differentiate clinically between cerebral infarct and hemorrhage. However in a third of the cases, the result was equivocal requiring more definitive investigation.

P3. Barthel Index and Canadian Score in elderly stroke patient in Bandung, Indonesia

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Background and objective: The life expectancy of Indonesian has improved from 56 years in 1983 to 63 years in 1988. The handicap of stroke in elderly patient is 2 to 4 time higher than the younger patients. This is a prospective study to assess the outcome of elderly stroke patients using Barthel Index and Canadian Index.

Methods: The study subject consisted of 35 elderly stroke elderly patients who was admitted to the Hasan Sadikin Hospital from 1st January to 31st March 1997. The patients were assessed using Barthel Index and Canadian Score at the time of admission, just before discharge and 1 month later.

Results: Of the 35 patients, 16 were males and 19 females. 25 had cerebral infarct and 10 had intracranial haemorrhage and 25 had cerebral infarction. Sixteen patients (46%) died during the period of study, 12 patients died while they are still in the hospital, and 4 patients died at home. Based on Barthel Index, on admission, 20% of patients had moderate disability (scores of 10-14) and 2.8% had mild disability (scores of 15-19). Before leaving hospital, 20% of patients had moderate disability and 11.4% had mild disability. One month later, 11.4% had moderate disability and 20% of patients had mild disability. Based on Canadian score, on admission, 57% of patients had moderate disability (≤ 6.5) and 25.7% had mild disability (>6.5). Before discharge, 31% had moderate disability and 34.3% had mild disability, one month later, 20% had moderate disability and 34.3% had mild disability.
Conclusions: The mortality of 35 elderly stroke patients in Bandung was 46%. One month after discharge, 34.3% of patients was scored to have mild disability according to Canadian Index; and it was 20% of patients based on Bathel Index.

P4. Correlation between proprioceptive function and Barthel’s Index in stroke patients: a cross-sectional study

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Background: The improvements in acute stroke management result in decreasing mortality rate in stroke. This results in the increase in stroke survivors with variable degrees of disabilities and disturbed activity of daily living (ADL). Many factors may influence the ADL, which are: age, motor strength, proprioceptive function, autonomic function, cerebellar function, visual field defect and the side of paresis.

Objective: The study is to measure correlation between proprioceptive functions and twenties score original Barthel’s Index in ischaemic stroke patients, as a part of routine clinical neurological examination. Methods: Prospective cross-sectional study of 47 consecutive patients with the first episode of ischaemic stroke patients whose diagnosis were confirmed by CT-scan within 48 hours after admission. Inclusion criterias were: age 40-65 year, fully consciousness and normal bladder function. Exclusion criterias were: aphasia, infarct volume more than 30 cc and other medical condition which prevent Barthel’s Index evaluation at day seven. Proprioceptive functions were tested for vibration, finger position, finger naming, two-point discrimination and stereognosis in both upper and lower limbs. Statistical analysis was done using step-wise multiple regression and student’s t-test.

Results: Mean age of patients was 55.4 ± 6.8 years, motor strength of upper limb was 3.1±1.3, lower limb was 3.4 ± 1.3 and the Barthel’s Index score was 14.4 ± 5.4. Step-wise multiple regression showed motor strength, proprioceptive functions, physiological and pathologic reflexes, also CT-scan findings of cortical and subcortical lesions were correlated with Barthel’s Index, but only motor strength and proprioceptive functions have stronger statistical significance (p<0.001). Student’s t-tests showed that patients with motor strength less than 3 both in upper (7.8 ± 3.7) and lower limb (5.8 ± 2.4), abnormality proprioceptive functions are upper limb vibration (10.6 ± 4.9), lower limb (10.2 ± 4.9), upper limb fingers naming (6.6 ± 2.2), lower limb (6.0 ± 1.2), stereognosis (8.6± 4.4) and foot finger position (7.9 ± 3.2) have statistical significance (p<0.001), while hand finger position (8.9± 4.2), two-point discrimination (7.6 ± 2.6) for upper limb and (7.0± 2.6) for lower limb, also have statistical significance (p<0.005).

Conclusions: All modalities of proprioceptive functions assumed may affect and play an important role as well as motor strength on Barthel’s Index. Determining proprioceptive functions in ischaemic stroke patients is important in assessing ADL in the future study.

P5. Correlative study of somatosensory evoked potentials and motor paresis in ischaemic stroke

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Background and objective: Somatosensory evoked potentials (SSEP) have been widely applied in the study of stroke. The aim of this study is to determine the correlation between the severity of motor paresis and SSEP in patients with first ischaemic stroke.
Methods: 44 patients with average age of 52 years were evaluated within 3-5 days of stroke onset. The clinical assessment included a quantitative evaluation of muscle strength using the Medical Research Council Scale. SSEP was done at the same time.

Results: Abnormal SSEP was seen in 36.36% of the patients. There was a statistically significant prolongation of the central conduction time of the affected side compared with that of the intact side (t=2.17, p=0.037). There was also significant correlation between muscle strength and SSEP (p=0.00157).

Conclusions: SSEP abnormalities were common in ischaemic stroke. The abnormalities correlated with the severity of muscle weakness.

P6. Pilot validation of a customized neuropsychological battery in elderly Singaporeans

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There is a need to adapt internationally developed psychological tests for the Singaporean population and establish local norms. This is particularly important for our rapidly aging population. Mental abilities are widely recognized to be affected in stroke and dementia patients. Pertinent areas of cognitive functioning include thinking & reasoning, memory, visual spatial, language, and psychomotor skills. Based on these domains, relevant test items from internationally validated and widely used psychological batteries are extracted and modified for local use. Alternate forms were developed to minimize practice effects. This composite neuropsychological battery was administered to 16 healthy volunteers (age range 48 -70, mean=60.6, sd=7.03). We found that this customized test battery (1) contained items relevant to the local culture, (2) was easily administrable in the local languages, and (3) could be completed within an hour. A more comprehensive validation and norming study is being planned.

P7. Headache among Indonesian nurses: a clinical study

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Headache prevalence was assessed among 540 Indonesian nurses. Questionnaire, interview and clinical examination using IHS diagnostic criteria revealed that 182 nurses (33.7%) suffered from headache. Of the headache sufferers, 31.3% had migraine, 23.6% had tension-type headache (TTH), 14.3% had mixed migraine-tension headache, and 28.1% had headache which could not be classified. Of the migraine sufferers, 71.9% had migraine with aura and 28.1% had migraine without aura. The mean age of the migraine sufferers was 31.3 ± 7.2 years and of the TTH 34.6 ± 7.3 years. The age of onset for Migraine and TTH was 19.1 ± 6.7 years and 22.7 ± 7.5 years respectively.

Dysmenorrhea and unilateral pain were prominent in the migraine group whereas both migraine and TTH have bilateral, pulsating and tightening pain. Associated symptoms were nausea, vomiting, photophobia, phonophobia, orthostatic hypotension and syncope. Among the 15 nurses who used hormonal contraceptives, 11 complained of aggravation of their headache. 8 of these nurses (72.7%) were migraine sufferers.

Instead of chocolate, our cases craved for chilly and sour food. The migraine group often required analgesics to continue their daily activities. Both the migraine and TTH sufferers practice “coin rubbing” and massage to relief their pain. Migraine sufferers also find relief from sleep.
P8. Desmoplastic infantile ganglioglioma with glioblastoma changes and long term survival: a case report

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A six week old female infant was admitted to hospital with hydrocephalus. She was found to be afebrile, comfortable and moving all 4 limbs. The reflexes were within normal limits except for brisk knee jerks. Cranial sutures were separated and fontanelles widened and the head circumference was 39 cm (97 percentile). The CT scan showed a large multiloculated cystic tumour occupying almost the entire left fronto-parietal cerebral area. At surgery, the tumour was found to have invaded the sinus and possibly the midbrain as well. Complete removal of the tumour was unsuccessful. There were no post-op complications and she was given dexamethasone and phenytoin. Two months later a second surgery to remove the rest of the tumour was successful. No post-op chemotherapy of radiotherapy was given but dexamethasone and Phenytoin were continued. The tumour histopathology showed a rare but typical desmoplastic infantile ganglioglioma with very unusual focal glioblastomatous changes which included necrosis and endothelial proliferation. Despite this the patient has been followed up for the last six years and did not appear to have developed any tumour recurrence.

P9. Survey of public awareness, understanding and attitudes toward epilepsy in Jakarta

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A survey of public awareness and understanding and attitudes toward epilepsy was carried out among certain community groups in Jakarta. This activity is to evaluate the effectiveness of the 5 year public awareness project on epilepsy. The study is ongoing and the results will be presented in the meeting.

P10. Cardiac rate and rhythm changes during complex partial seizures

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Epileptic seizures may cause changes in cardiac rate and rhythm. Although this has been known since the beginning of the century, little is known about frequency and type of cardiac rate and rhythm changes. Since cardiac arrhythmia may masquerade as epilepsy an vice versa, it is important to know about the relationship between the two.

We analyzed cardiac rate changes in 36 partial-complex seizures recorded with simultaneous EEG/ECG and compared them to the medical literature. An average increase in heart rate of 35% was observed in 60% (22/36) of patients. Bradycardia was demonstrated in 17% (6/36). In the remaining 22% (8/36) of patients, no change in heart rate was revealed.

These results in conjunction with those of the literature indicate that a primary epileptic origin of cardiac arrhythmia needs to be excluded in the differential diagnosis of cardiac arrhythmia.
P11. Stereotactic pallidotomy and gamma-knife pallidotomy for Parkinson’s disease

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There has been a resurgence of interest in pallidotomy for the treatment of Parkinson’s disease (PD) over the last 10 years. We present our experience with 2 types of pallidotomy for PD which have been carried out in 24 patients over the last 10 years for the treatment of progressive bradykinesia, rigidity and dopa-induced dyskinesia. 21 patients had stereotactic radio-frequency pallidotomy using a needle electrode and MRI/CT imaging guidance together with electro-physiological confirmation of the final target in globus pallidus using stimulation techniques. 3 patients had the newer, less invasive gamma pallidotomy with gamma-knife.

In the pre-operative period, 3 patients were Hoehn and Yahr II, 10 were grade III, 9 were grade IV and 2 were grade V. Overall there was a 73% improvement in bradykinesia and rigidity, a 80% improvement in dopa-induced dyskinesia in patients followed for a mean period of 3.1 years.

Pallidotomy is a useful procedure for patients with progressive symptoms of bradykinesia, rigidity and dopa-induced dyskinesia.

P12. The history and evolution of surgery for Parkinson’s disease

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The has been a great revival of interest in the surgical treatment of Parkinson’s disease (PD) in recent years. This paper traces the origins and evolution of surgical therapies for (PD) from the 1930s to its present day renaissance.

In 1932 during the pre-stereotactic era, Bucy and Buchanan first attempted primary motor cortex ablation, but with the birth of stereotactic surgery in 1947 by Spiegel and Wycis, the techniques were greatly refined. Surgery for PD subsequently flourished in the 50s and 60s, and many seminal contributions to the operations of thalamotomy and pallidotomy were made by such pioneers as Hassler, Riechert, Narabayashii and Cooper. With the introduction of L-dopa in 1968, surgery for PD suffered a steep and long decline in the 70s and 80s, and it is only in the last few years in the 90s that it is becoming fashionable again, primarily through the popularization of postero-ventral pallidotomy by Laitinen in a landmark paper published in the Journal of Neurosurgery in 1992. The evolution of present day techniques (mainstream as well as experimental) has resulted mainly from a multitude of advances in basic neuroscience research. These include deep brain stimulation in the thalamus, globus pallidus and subthalamic nucleus, fetal transplantation and intraventricular instillation of GDNF (glial-derived neurotropic factor), all of which will be discussed.


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Background and Objective: This is the first epidemiological survey of stroke in the rural and city of south of Vietnam, to determine its incidence, prevalence, mortality rates and the risk factors. Methods: A door to door survey was conducted in the years 1994 and 1995 in Phu My Village, Nha Be District, and VIIth Ward, Vth District, HCM City (HCMC); Dong Hoa Village, Chau Thanh District, Tien Giang Province (TG) and Minh Luong Village, Chau Thanh District, Kien Giang
Province (KG). The screening was done by 60 students of medicine and medical assistant, the stroke patients were examined by 10 neurologists. The diagnostic criteria was based on WHO's Recommendation on the Diagnostic, Prevention and Treatmant of Strokes, 1989. Results: A total of 52,649 population was surveyed. There were 219 patients with stroke, and another 147 patients who had stroke in the last 5 years and had died. 54.1% of the patients were male, 79.2% were ≥56 years, 64.5% were poor or very poor. The prevalence was 415 per 100,000 population, 1,733 per 100,000 for the population ≥46 years old, 400 per 100,000 for HCMC, 446 for TG and 411 for KG. The annual incidence rates was 161 per 100,000 overall, 114 per 100,000 for HCMC, 176 per 100,000 for TG and 241 per 100,000 for KG, 697 per 100,000 in the population ≥46 years old. Cerebral infarct was seen in 70%, intracerebral hemorrhage and SAH in 30%. The stroke occured during exertion in 14%, ordinary activities in 21% and rest or sleep in 53%. The risk factors were: hypertension 55% (80% was undiagnosed or not regularly treated), cigarette smoking 34% (>10/day), alcohol 22%, previous TIA 12% and heart disease 9%. The mortality was 36% overall, 28% for HCMC, 44% for TG and 39% for KG. Conclusion: The prevalence is lower and the incidence similar to that of developed countries. The prevalence, incidence, the rates of hypertension (untreated and irregularly treated), cigarette smoking and alcohol consumption were all higher in the rural areas as compared to the HCM City.