

Hosting 1,000 Neurologists Under One Roof

The meeting of the Asian & Oceanic Congress of Neurology 2004 (AOCN), which convenes once every 4 years, was held in Singapore from 26-28 November 2004. This was the first time in the 44-year history of the Asian & Oceanic Association of Neurology (AOAN) that it was organised by the National Neuroscience Institute of Singapore (NNI), along with the Clinical Neuroscience Society of Singapore (CNS) and Chapter of Neurologists, College of Physicians.

The 3-day congress attracted a huge audience of over 1,000 delegates in the field of neurology. They came from the various Asian countries, Australia, New Zealand, United Arab Emirates, Canada, UK, Germany, The Netherlands and USA.

Dr Christopher Chen, the organising chairman, felt that one of the highlights of the congress was meeting so many colleagues from all over the Asia-Pacific region and seeing so many young neurologists participating in the meeting. He was particularly pleased that the speciality and poster sessions were well organised which attracted good participation among the delegates.

A total of 69 faculty members delivered 21

Plenary lectures and 48 symposium lectures on Dementia, Central Nervous System Infections, Epilepsy, Stroke, Neuro-Ophthalmology, Neuro-Intensive Care, Neuro-Immunology, Neuro-Oncology, Movement Disorders, Neuromuscular Diseases, Headache and Pain.



(Left to right) Dr Christopher Chen with Guest of Honour, Dr Balaji Sadasivan, Senior Minister of State for Health, and Dr Chumpon Chan, NNI's Deputy Director (Clinical). Dr Balaji noted in his speech that there is one neurologist here to every 107,000 Singaporeans and that more doctors are needed for the elderly as the population ages.



The 3-day AOCN provides an excellent opportunity for the 1000 delegates to meet each other, identify priorities for the region and to plan solutions together.



A traditional lion dance performance at the Opening Ceremony thrilled many of the audience of AOCN.

Prof Benjamin Ong of the organising committee thought that delegates at the congress were presented with variety and core updates in all aspects of neurology. He added that the organising committee had taken care to ensure that a large number of world class luminaries

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Analgesic Rebound Headaches

■ Dr Charles Siow – Consultant, Neurology

Headache patients constitute one of the largest groups of patients in neurology outpatient clinics. Most of these patients have episodic primary headache disorders e.g. migraine, tension type headache, cluster headache etc. However, it is estimated that up to 4% of our population suffer from chronic daily headaches.

In a recent study in Taiwan, transformed migraine was the most common subtype (55%), followed by chronic tension type headache (44%). Thirty-four per cent of these patients overused analgesics. This figure rises to 80% of patients with chronic daily headache who present to some American specialty headache clinics. A summary of 29 studies involving 2,612 patients with analgesic rebound headache revealed that migraine was the primary headache in 65% of patients, tension type headache in 27% and mixed or other headaches in 8%. The mean duration of daily headache was 5.9 years and an average of 4.9 analgesic medications were taken daily.

Medication overuse can make headaches refractory to prophylactic medications. Although stopping the acute medication may result in withdrawal symptoms and a period of increased

headaches, there is generally a subsequent headache improvement. In one study, most chronic daily headache patients withdrawn from frequent analgesic use and given no additional therapy eventually no longer had daily headaches; although 40% still had episodic migraine attacks. Apart from migraine and tension type headache patients, patients with hemicrania continua and new daily persistent headache are also at risk for overusing abortive medications due to their frequent headaches.

However, it is not true that all patients with chronic daily headaches overuse analgesic medications. Some patients develop chronic migraine or chronic tension type headaches without overusing medications while there are others who continue to have daily headaches even after discontinuing frequent analgesic use. Medication overuse in headache patients is seldom due to primary substance abuse. It is also important to know that headache patients can develop a rebound phenomenon with daily headaches even if the analgesic use is for a nonheadache condition e.g. chronic low back pain.

Apart from the risk of developing rebound headaches from frequent analgesic use; prolonged drug overuse has other serious

consequences including hepatotoxicity, renal impairment and gastrointestinal ulceration. Tolerance to the analgesic, habituation and physical dependence may also occur. In addition, preventive or prophylactic medications are ineffective while a patient is in rebound.

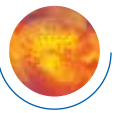
There are no studies quantifying the analgesic doses and duration of exposure needed to develop rebound headaches. Much of what we know derive from our observations and anecdotal data. Although they may be individual differences to the susceptibility of developing analgesic rebound headaches, certain guidelines have been suggested to limit this from happening. It is recommended that patients do not take simple analgesics more often than 5 days a week, triptans, combination analgesics or caffeine compounds not more than 3 days a week; and opioids and ergotamine not more than 2 days a week. At least 2 days a week, a patient should not take any analgesics even if they have chronic daily headache in order to avoid developing this rebound phenomena.

At the NNI, we see headache and migraine patients at our weekly clinics at NNI at Tan Tock Seng Hospital and NNI at Singapore General Hospital.

Analgesic	Recommended Use
Paracetamol / NSAIDs	No more than 5 days a week
Combination Analgesics (Paracetamol/Aspirin + Caffeine/ophrenadrine)	No more than 3 days a week
Triptans	No more than 3 days a week
Opioids / Ergotamine	No more than 2 days a week

■ References:

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 Mathew NT, Kurman R, Perez F. Drug induced refractory headache--clinical features and management. *Headache*. 1990 Oct;30(10):634-8.
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Advanced Imaging Techniques catering to its demand at the 5th Advanced Neuroradiology Course

■ Dr Wickly Lee – Associate Consultant, Neuroradiology

The 5th Advanced Neuroradiology Course, held from 24 – 26 November 2004, was focussed on interventional neuroradiology and advances in 3T MR neuroimaging. In addition, there was also a “Back to Basics” module on foundational refresher lectures. The organising committee, headed by course director A/Prof Tchoyoson Lim, was hard at work a year before the course with the planning and steering of the scientific programme.

This year was particularly special as the opening address was given by the president of the newly established Singapore College of Radiology, Dr Tan Kim Ping, who was the guest-of-honour.

The 3-day course showcased a panel of well-known experts, both overseas and local. The overseas faculty comprised prominent expert in interventional neuroradiology, Prof John C Chaloupka, from the University of Iowa USA, as well as experts in the field of diagnostic neuroradiology, Dr R K Gupta from Sanjay Gandhi Postgraduate Institute of Medical Sciences, India, Dr W Willinek from the University of Bonn, Germany and Dr Stefen Sunaert from Gasthuisberg University Hospital, Leuven, Belgium. Local faculty comprised prominent neuroradiologists from both the NNI and SGH.

A unique factor in this year's course was the emphasis of advanced imaging techniques, especially in the field of magnetic resonance imaging. This was the result of an increasing quest for knowledge within the radiology community to tackle difficult neurodiagnostic imaging issues. Advanced MR techniques like diffusion tensor imaging and fibre tracking, arterial spin labelling, CT perfusion, MR spectroscopy and high field 3T MR functional imaging were discussed in detail. Interventional neuroradiology lectures were particularly refreshing, especially new techniques and concepts that were highlighted during the course by Dr John Chaloupka. Two “live” demonstrations in interventional neuroradiology was well appreciated by the audience, and they showcased Dr John Chaloupka's excellent interventional techniques in stenting and coiling of intracranial aneurysms.

Apart from the scientific sessions, there was a technical exhibition featuring the latest in neurointerventional and neuroimaging equipments and devices.

The Advanced Neuroradiology Course is an important annual event organised by the NNI's Department of Neuroradiology. Since its first inception in 1999, it has seen growth in the number of participants. We saw over 140 participants from neighbouring countries like

Malaysia, Thailand, Indonesia, Philippines, Vietnam and from as far away as Saudi Arabia, Japan and the United States. The delegates came from a broad spectrum of backgrounds. There were radiographers, neuroscience specialists, MR physicists, technologists, nurses and researchers. The course has also matured over the years, with the providence of a strong relevant scientific programme in tandem with the ever changing climate in both diagnostic and interventional neuroradiology. This course is part of the NNI's effort to promote not just excellence in its clinical services but also leading in education and research.



■ Dr Tan Kim Ping, giving his first opening address as President of the newly formed College of Radiology, Singapore.



■ An annual highlight of the Neuroradiology Course - demonstration of the latest interventional neuroradiology procedure, beamed “live” from the operating theatre.



■ (Left to Right) Prof John Chaloupka and Dr Francis Hui discussing the options of stenting and coiling of intracranial aneurysm at the Neuroradiology Conference.



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in many sub-specialty areas were invited. There were also significant contributions from the region, giving it a distinctive Asian dimension as well.



■ Prof Christopher Kennard (Imperial College London) so impressed his audience with his ability to engage, entertain and educate neurologists from all levels of expertise during his visit to Singapore.

Among the many experts who came, Prof Christopher Kennard from Imperial College London, UK who presented his lectures on



■ A welcome reception, where food and drinks were aplenty, was held at the historic Chijmes Hall. Given its rich history and unique ambience amidst awe-inspiring neo-Gothic structures and 19th century stained glass windows, it was an evening to remember for all.

"The Eyes as a Window to the Brain" and "The Cortical Control of Eye Movements" received accolades for the most visually appealing lectures. He has done extensive research in the fields of visual perception and the neurological control of eye movements in patients with certain neurological disorders like Parkinson's disease and strokes.



■ It is never too early to learn about neurology and how one does research on brain diseases, as one of the delegates explains to his family. A total of 52 platform sessions and 234 posters were presented at this Congress



■ An Australian connection in Singapore. (Left to Right) Prof Stephen Davis (Royal Melbourne Hospital), Prof Samuel Berkovic (Epilepsy Research Institute, Melbourne) and Prof Colin Masters (University of Melbourne).

in their areas of expertise. Both have won numerous awards and achievements and it was a privilege to have them share new insights in the areas of epilepsy and genetics and recent advances in the management and treatment of migraines.

Professors Samuel Berkovic from Australia's Epilepsy Research Institute and Prof Stephen Silberstein from Jefferson Headache Center, USA also gave illuminating lectures

To many delegates who attended the recent AOCN, it was generally felt that it was a great chance to meet with colleagues from the Asia-Pacific region and to see the quality and breath of the work being done around the world.



■ Traditional crafts like Chinese calligraphy, Indian henna painting, Malay batik painting were demonstrated to an appreciative audience at the welcome reception in Chijmes Hall.



Helping The Asia Tidal Wave Victims

The Corridor of the Neuroscience Clinics were abuzz with sales activities on 20 January 2005. In conjunction with the cluster-wide 'Apples with a Heart' movement, where staff donate the money they would otherwise spend on a meal to the tsunami victims, and substitute that meal with an apple, a bazaar was held to end off our 10-day charity drive.

With a spread of home-made delights, pastries and bread from Polar Puffs & Five Loaves, hand painted greeting cards, Chinese New Year decorations, stuff toys, picture frames, scarves and accessories for grabs, both staff and patients were surprised to find little treasures at affordable prices. It was truly a fun way for the staff of NNI to do our bit for charity and to help the less fortunate in other parts of Asia.



A variety of trinkets and accessories on sale by the staff during a lunchtime bazaar raised about \$1000.

The organising committee of AOCN congratulates the winners of poster and platform presentations

OPEN CATEGORY

AWARDS FOR BEST POSTER PRESENTATION

TRAINEE CATEGORY

AWARD	NAME	TITLE	COUNTRY
First Prize	G V S Choudhary	Prevalence of Seizure Disorders Associated with Neurocysticercosis: A Community-based Study - Comprehensive Rural Epilepsy Study – South India (CRESS)	India
1 st Runner-Up	Ichizo NISHINO	Restoration of Sialylation in Distal Myopathy with Rimmed Vacuoles/Hereditary Inclusion Body Myopathy	Japan
2 nd Runner-Up	PARK Sung-Pa	Long-term Cognitive Effects of Topiramate Monotherapy in Epilepsy	Republic of Korea

AWARD	NAME	TITLE	COUNTRY
First Prize	Suja M S	Role of Apoptosis in Pathogenesis of Rabies - A Suicide Trail Barred by the Rabies Virus?	India
1 st Runner-Up	LI Wen-Yu	Clinical and Radiological Characteristics of White Matter Medullary Infarcts using Diffusion-Weighted Magnetic Resonance Imaging	Republic of Korea
2 nd Runner-Up	Muhammad YUSUF	Cognitive Function As Assessed Using the Mini Mental State Examination And Clock Drawing Test In Elderly People at the Abdi Kasih Nursing Home Binjai, North Sumatera, Indonesia	Indonesia

OPEN CATEGORY

AWARDS FOR BEST PLATFORM PRESENTATION

TRAINEE CATEGORY

AWARD	NAME	TITLE	COUNTRY
First Prize	Kongkiat KULKANTRAKORN	The Need of CT Head before Lumbar Puncture in HIV patients with CNS Infection	Thailand
1 st Runner-Up	Peterus THAJEB	Effects of Target Cell, BDNF on EDA Survival	Taiwan
2 nd Runner-Up	Grace Ho	Cigarette Smoking Interact With Methyleneterahydrofolate Reductase (Mthfr) Gene Polymorphism On Risk Of Ischaemic Stroke.	Singapore

AWARD	NAME	TITLE	COUNTRY
First Prize	LIN Chi-Hsien	The Role of Dopamine Metabolizing Enzymes - COMT and MAO-B Genotype Polymorphism in the Occurrence of L-dopa Related Motor Complications	Taiwan
1 st Runner-Up	LAM Kuen	Screening Of Oropharyngeal Dysphagia in Parkinson's Disease	Hong Kong
2 nd Runner-Up	Ma. Epifania V. COLLANTES	Hemicraniectomy For Malignant Middle Cerebral Artery Infarcts (Hemmi): An Ongoing Randomized Clinical Trial	Phillipines



Nurse Clinicians' Overseas Presentation



■ SN Lau Puay Ngoh is one of many nurses who have had the privilege to share her experiences overseas.

Over the years, the NNI has showcased many clinicians' presentations at many overseas conferences. We are proud that our nurses too, have had many opportunities to present their studies and investigations to their overseas counterparts. Some of their poster presentations for the year 2004 are listed with comments from the nurses on their experience.

Summary Of Yr 2004 Poster & Oral Presentations

Name	Title	Event
Lau Puay Ngoh	The Usage of Alternative & Complementary Medicine Among Patients with Parkinson's Disease – Oral Platform Presentation	Beijing International Symposium on Parkinson's Disease
Lau Puay Ngoh	The Usage of Traditional Chinese Medicine Among Chinese Patients with Parkinson's Disease – Poster Presentation	1 st SingHealth Annual Scientific Meeting
Lau Puay Ngoh	The Usage of Alternative & Complementary Medicine Among Patients with Parkinson's Disease – Poster Presentation	3 rd National Healthcare Group Annual (NHG) Scientific Congress
Lee Kah Keow	Epidemiological of Severe Traumatic Brain Injury Patients Admitted to the National Neuroscience Institute (NNI), Singapore	7 th International Neurotrauma Symposium
Lee Kah Keow	What is the Ideal Cerebral Perfusion Pressure in Severe Head Injury? A Multivariate Logistic Regression Study	3 rd National Healthcare Group (NHG) Annual Scientific Congress
Lee Kah Keow	Demographics of Severe Traumatic Brain Injury Patients Admitted to the National Neuroscience Institute (NNI), Singapore	1 st Singhealth Annual Scientific Meeting Consolation prize
Lee Kah Keow	Effect of standardised endotracheal suctioning procedure on PtiO ₂ in Brain Injured Patients	1 st Singhealth Annual Scientific Meeting
Lee Kah Keow	Knowledge, Attitude and Health Seeking Behaviour Among Traumatic Brain Injury Patients and Their Immediate Family Members	1 st Singhealth Annual Scientific Meeting
Jennie Lee	Depression Symptoms in Parkinson's Disease Patients	1 st Singhealth Annual Scientific Meeting

I was very honoured to be sponsored by the Health Service Development Programme to attend the 7th International Neurotrauma Symposium from 12 - 16 September 2004. Besides presenting a poster titled "Epidemiological of Severe Traumatic Brain Injury Patients Admitted to the National Neuroscience Institute (NNI), Singapore", I also gave an oral presentation on "Investigating Gender Differences in Outcomes following Severe Traumatic Brain Injury". Personally, it was a very enriching experience to attend such international meetings as I got to meet many people from different countries.

Lee Kah Keow
Nurse Clinician (Head Injury)

I was very privileged to be given the opportunity to present my research findings at the Beijing International Symposium on Parkinson's Disease from 4-7 September 2004. It was an oral platform presentation entitled "The Usage of Alternative & Complementary Medicine Among Patients with Parkinson's Disease". I had a wonderful and rewarding experience meeting other scientists, researchers and doctors from countries like USA, Canada, and the Asia Pacific regions. I learnt about the latest advances in basic science, general development of scientific research, clinical prevention and management of Parkinson's Disease.

Lau Puay Ngoh
Nurse Clinician (Parkinson's Disease & Movement Disorders)



RELEVANCE OF THE PUFFERFISH IN UNDERSTANDING HUMAN NEUROLOGICAL DISORDERS

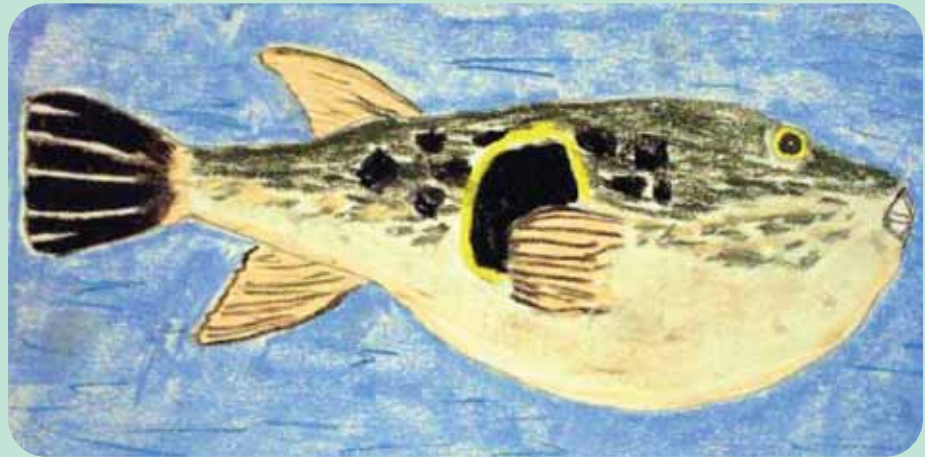
■ Dr Yu Wei-Ping & Dr Lim Kah Leong – Principle investigators, NNI Research Faculty

Sounds fishy? Think pufferfish and many would conjure up images of the prized Japanese delicacy, whose exquisite preparation requires the surgical hands of a highly trained chef to rid the potent neurotoxin the fish contains. However, the more informed would be aware that the pufferfish is also a prized commodity for genomics research. Scientifically known as *Fugu rubripes* (Fugu), the pufferfish genome, which represents one-tenth of the human genome, is the most compact vertebrate genome known to date. Indeed, its potential usefulness in helping to decipher the intricacies of the human genome was first recognised by Nobel laureate Dr Sydney Brenner, who subsequently led an international consortium, including genome researchers in Singapore, to complete the draft sequence of the Fugu genome. The importance of this landmark scientific accomplishment is underscored by the fact that the Fugu genome is the first vertebrate genome to be draft sequenced after humans.

One of the greatest surprises that came out from the draft human genome sequence is that we have significantly less genes than what we have originally thought. Previously, we learnt from textbooks that humans contain about a hundred thousand genes, putting us well above other organisms in the evolutionary ladder. Now, we know from the draft human genome sequence that we contain far less than that, to be more precise, about 30 000 genes only. To the gene-centric, this is a definitely an intriguing paradox. Clearly, in terms of gene number, we are not that different from a typical weed (*Arabidopsis* ~ 27 000 genes). Instead, emerging new findings point to the genome exquisite control of each gene's activity, and not the gene per se, that makes humans humans and weed weed. An important corollary that ensues is that when gene regulation goes awry, diseases surfaced.

Here at the NNI research department, several

groups, including ours, are working together to understand how aberrations in gene regulation lead to common neurological



■ A drawing of *Fugu rubripes* by Dr. Greg Elgar, Group leader, Comparative Genomics, HGMP-RC, Cambridge, UK (http://fugu.hgmp.mrc.ac.uk/PFW/PhotoAlbum/fugu_rubripes_drawing.html)

disorders such as Parkinson's disease (PD), muscular dystrophy and channelopathies. A significant hurdle towards elucidating the regulatory elements of genes involved in these common neurological disorders is that the genes we deal with are often extremely huge in size. Take parkin, a gene whose expression variability is associated with PD, for example. The human parkin gene is a staggering 1 400 000 bp in length! Naturally, to map the elements controlling parkin gene expression is going to be an exceedingly laborious task. Fortunately for us the Fugu genome, despite its small size, contains an amazingly similar gene repertoire to that of humans. What's more is that the Fugu genes, unlike its corresponding human counterparts, are devoid of much of the "junk" DNA sequences that typify mammalian genes. Hence, the text of the Fugu gene sequence is very rich in information.

We have taken the first step in our aforementioned collective endeavour by cloning out the Fugu parkin gene. To our surprise, the size of the Fugu parkin gene turns out to be just around 4 kbp, about 400-fold more

compact than the human parkin gene². This is much less than the one-tenth compactness we originally expected. Otherwise, the structure,

expression and function of Fugu parkin gene are similar to its human counterpart. With this amenable size, we have begun isolating the regulatory elements of Fugu parkin gene, the identification of which would pave the way for functional comparative genomics to be conducted and the eventual mapping of the analogous elements in the human parkin gene. At the same time, we are also cloning out the Fugu analogs of human genes that are involved in other human neurological disorders. By understanding how these genes are regulated normally, we hope to understand what goes wrong with them during disease states and to find a way to restore them to normalcy to arrest the disease conditions.

For further reading

1. Aparicio S, Chapman J, Stupka E, et al. Whole-genome shotgun assembly and analysis of the genome of *Fugu rubripes*. *Science*. Aug 23 2002;297(5585):1301-1310.
2. Yu, W.P., Tan, J.M.M., Chew, K.C.M., Oh, T., Kolatkar, P., Venkatesh, B., Dawson, T.M. and Lim, K.L. (2004) The 350-fold compacted Fugu parkin gene is structurally and functionally similar to human Parkin. *Gene* (In Press).



Coming up soon...

Event: 3rd Singapore International Movement Disorders Symposium
 Date: 9 – 11 September 2005
 Venue: Theatre, Level 1. Tan Tock Seng Hospital
 Audience: Specialists, General Practitioners, Nurses and Allied Health professionals.

Programme will include a main symposium for specialists, workshops on nursing, Genetics, Dementia, Botulinum toxin, and a GP symposium. More details will be announced at a later date. So keep those dates free in you are keen to keep abreast of trends and development in Parkinson's Disease and Movement Disorders.

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New Outpatient Clinics Operation Hours



With effect from January 2005, both the Neuroscience Specialist Clinics and Neurodiagnostic Clinic & Laboratory Services will be operational at the following hours:

Mon, Tues, Wed & Fri	8:00 am – 5:30 pm
Thu	8:00 am – 5:00 pm
Sat, Sun & Public Holidays	Closed

Neurodiagnostic Clinic & Laboratory Services
 Appointment/ Referral Tel: **6357-7070**

Neuroscience Specialist Clinics
 The clinics' appointment / referral lines will continue to be operational on Saturdays from 8:00am – 1:00pm for GPs, who wish to make appointments/ referrals.

Appointment / Referral
 Tel: **6357-7095** Hotline: **9637-9718**