

Towards More Accurate Brain Tumour Diagnosis

Dr Ng Wai Hoe, Consultant, Department of Neurosurgery, National Neuroscience Institute

A/Prof Tchoyoson Lim, Senior Consultant, Department of Neuroradiology, National Neuroscience Institute

Brain tumour is one of the most devastating forms of human disease. The mystery and aura of the brain often brings about great anxiety to the layman. Sadly, brain tumours are the second most common form of malignancy in children and the sixth to eighth most common form of malignancy in adults.

Brain tumours are conventionally classified into primary tumours, which originate in the brain and secondary (or metastatic) brain tumours, which originate from a different site such as the lung, breast or colon.

Primary tumours of the brain and spine account for less than 2% of malignancies but are responsible for 7% of the years lost of life lost from cancer prior to 70 years of age. In childhood, these figures are even more dramatic and primary brain tumours account for 20% of malignant tumours diagnosed before 15 years of age.

Gliomas are the most common primary brain tumours, and arise from the cells in the brain known as glia cells, (hence the term glioma). Glia cells are composed of various different cell types such as astrocytes, ependymal cells and oligodendrocytes, and tumours of these cell types are called respectively astrocytoma, ependymoma and oligodendroglioma.

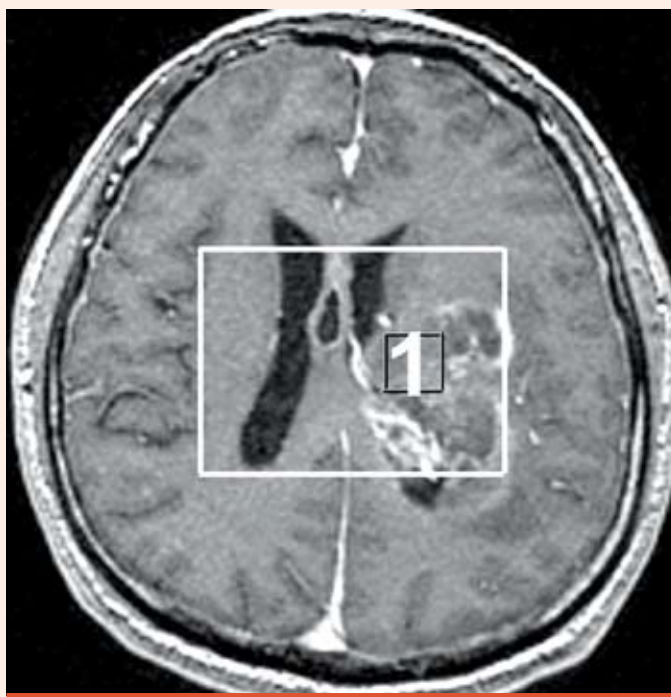
Most people are familiar with the staging of cancers which gives an indication of how bad the cancer is based on tumour size and spread.

Neurosurgeons are often asked by their patients and families about the stage of the brain tumour. A unique distinguishing characteristic of brain tumours is that the tumours very rarely spread out of the confines of the brain, and as such, a grading rather than a staging system is used. This is based on the appearance of malignancy of the tumour under a high-magnification microscope: Tumours with

high grading are more aggressive, destructive and harder to treat. Even without distant spread of the brain cancer, the localised invasion of the tumour into the surrounding brain and the pressure effects of the expanding tumour can lead to severe brain damage, complications and death.

Another interesting fact about brain tumours, particularly gliomas, is the fairly frequent presence of tumours of different grade within a single brain tumour mass. Furthermore, the highest tumour grade present in the mass will determine the behaviour and survival outcomes. Hence, even if only a very small proportion of the tumour is of a high grade, this proportion of the tumour will have to be dealt with. This has obvious implications in the accurate diagnosis and appropriate treatment of brain tumours. Treatment such

as radiation therapy and chemotherapy are not without risk and side effects, and this means that treatment should only be administered with accurate diagnosis and grading of a brain cancer. Confirmation of a brain tumour usually requires surgical removal of tumour tissue for examination. Sampling error (error resulting from the chance removal of tumour of lower grade even when there is high grade



MRI scan showing a few discrete tumours located deep within critical brain structures (region 1 is investigated further on MR spectroscopy)

01

Medical Update
Towards More Accurate Brain
Tumour Diagnosis

03

Medical Update
Total Knee Replacement

05

Medical Update
Management and Care
of Dementia

08

Medical Update
Managing Back Pain - An Update

10

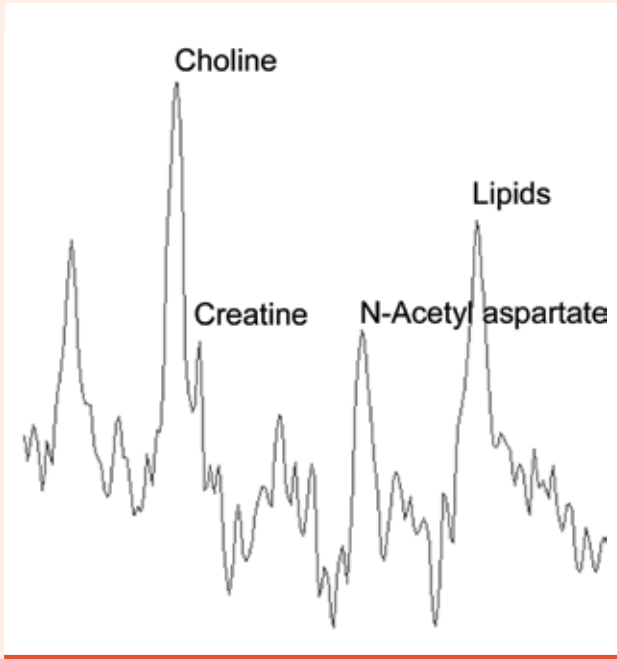
Service Packages & Updates
KKH Adolescent Medicine Service
Introduces a Structured & Holistic
Approach to Obesity Management

11

Continuing Medical Education

12

Continuing Medical Education /
Hotline Numbers



MR spectroscopy showing the chemical composition of region 1

tumour present) must be minimised to provide accurate diagnosis and start proper treatment. Extensive surgical removal of the brain tumour is therefore often recommended to reduce this sampling error.

Regrettably, brain tumours may often be small and located in deep structures of the brain and this sometimes make extensive surgery risky. In such situations, a needle biopsy is recommended and involves the very accurate placement of a small needle with the aid of sophisticated computer software into the tumour to obtain a small amount of tissue for examination. This procedure carries a low surgical risk but the inherent problem of sampling error in view of the small amount of tissue obtained needs to be addressed. A technique to target specific regions with the most aggressive tumour of the highest grade will certainly aid with the diagnostic process. Magnetic resonance spectroscopy (MRS) is a technique which allows for the non-invasive pre-surgical identification and measurement of specific chemicals within the brain. Different chemicals can be detected and measured over specific small areas of the tumour.

Cancerous regions have certain characteristics with the most well-described finding of higher levels of a substance known as choline. Finding and targeting the choline-rich areas will improve the chances of obtaining and staging the more cancerous cells and reduce the possibility that a falsely low grade of tumour will be wrongly diagnosed. We have recently identified and published our findings that besides choline, lipids (or fatty acids) may potentially be a more important chemical to consider, and may also be useful to identify the highest grade of tumour, together with choline.¹ We hope that this new research finding can contribute to greater diagnostic accuracy, greater yield and result in the most appropriate treatment for our patients.

References

1. Targeting regions with highest lipid content on MR Spectroscopy may improve diagnostic yield in stereotactic biopsy (Wai Hoe Ng, Tchoyoson Lim) Journal of Clinical Neuroscience (2008) 15(5): 502-506.

Total Knee Replacement

Dr Yeo Seng Jin, Senior Consultant, Dept of Orthopaedic Surgery, Singapore General Hospital

Chronic knee pain is most commonly caused by osteoarthritis. Many non-surgical options are available to people with chronic knee, such as medications, self management programs and physiotherapy. However, these interventions have been shown to have only small effect sizes on knee pain. When these conservative treatments fail, patients may be offered surgical options such as osteotomy and arthroscopy, although these procedures have limited success in pain reduction. The only intervention that has a large effect size on relieving chronic knee pain is total knee replacement (TKR).

TKR (Figure 1 on the right) is widely considered as an effective treatment and successful end-stage surgical procedure for relieving chronic knee pain and functional disability. There appears to be rapid and substantial improvement in the patient's pain, functional status, and overall health-related quality of life in 90% of patients. Data suggests that these improvements in patient reported outcomes persist in both the short- and long-term studies. With improvements in surgical techniques, instrumentation and prosthetic design, the survivorship of the TKRs have improved over the past 30 years since the surgery was introduced (Figure 2).

90% survivorship is expected at 15 years. Technical factors in performing surgery still influence the short- and long-term success rates. Proper alignment of the prosthesis appears to be critical in minimising long-term wear and loosening of the prosthesis. Revision TKR is possible but the results are inferior to primary TKR and every effort is made for initial successful and long lasting primary TKR.

In the past, patients between 60 and 75 years of age were considered to be the best candidates for TKR. Over the past two decades, however the age range has been broadened to include, on the one hand, more elderly patients (e.g. octogenarians and beyond), many of whom have a higher number of comorbid conditions, and, on the other hand, younger patients who may have higher levels of physical activity. Advanced age alone is not a contraindication for TKR;

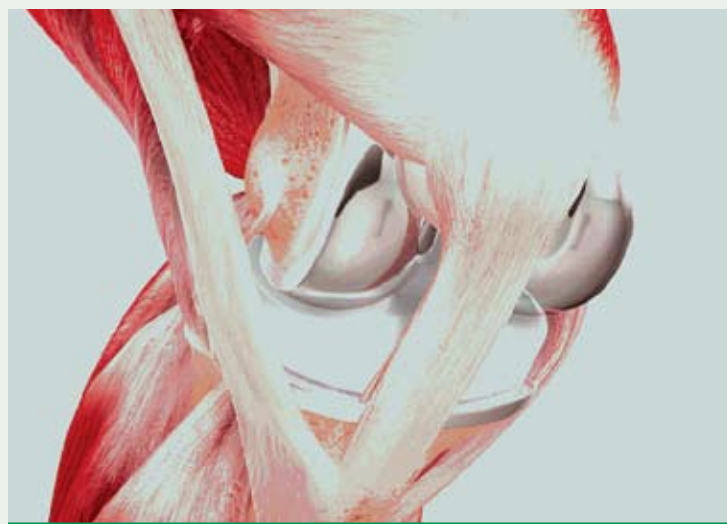


Figure 1. Courtesy DePuy International

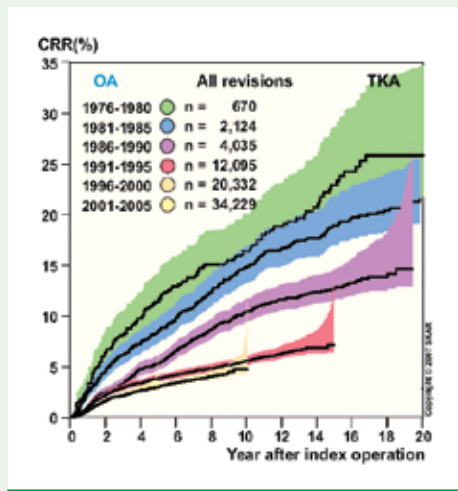


Figure 2. Reduction in Cumulative Revision Rate (CRR) over time (Courtesy Swedish Knee Arthroplasty Registry)

however, perioperative complications are higher in patients who are older at surgery as well as in those with more comorbid conditions. There are few absolute contraindications for TKR other than active local or systemic infections and other medical conditions that substantially increase the risk of serious perioperative complications or death. Complications following TKR include wound healing problems; wound and deep tissue infection; deep vein thrombosis and pulmonary embolism; pneumonia; myocardial infection; joint instability, stiffness, and/or malalignment; nerve and vascular injuries. One of the most important factors leading to successful TKR is proper surgical technique.

Because of these successful outcomes, TKR is now the most common surgical procedure performed by the Department of Orthopaedic Surgery at the Singapore General Hospital (SGH). 1400 TKRs are performed in SGH annually accounting for half the total number performed in Singapore. There is a direct association between hospital and surgeon procedure volume and the outcomes of TKR. For example surgical site infection risk is reduced with increasing hospital and surgeon volume and the deep infection risk in SGH is 0.6%. Other outcome results are available on the SGH website.

New improvements in perioperative pain management, less invasive surgical approaches, clinical care pathways and accelerated rehabilitation programs have reduced the recovery period and hospital stay which averages 4 days. Patients are now encouraged to start ambulation the following day after surgery and are able to climb stairs before discharge.

At present, there is no consensus regarding activity limitation following successful TKR. In general, patients are advised to avoid activities that involve high impact repetitive loading on the implant such as jogging or skipping. Most surgeons would set the limit of activity at the level achieved during doubles tennis.

Normal occurrences that patients notice during the recovery period include; intermittent clicking inside the knee; area of skin numbness on the lateral aspect of the wound; swelling after exercise and at end of the day; warmth around the knee; ankle swelling that resolves overnight; bruising; and difficulty with sleeping.

Abnormal symptoms and signs include increased redness around the wound, fever, any drainage around the wound and calf pain and swelling, and require early referral to the specialist.

The challenge now is for the younger patients i.e. less than 60 years of age, who present with degenerative arthritis that require TKR. These patients are more active and are expected to have more than 20 years of life remaining and thus more likely to outlive their prosthesis. New technologies have been introduced to try to address this problem and increase the lifespan of the TKR. These include newer materials for the bearing surfaces in TKR and Computer Assisted Surgery (Figure 3) which increases the precision of implantation of TKR. Both have the potential to reduce wear in TKR and hence increase the longevity of the prosthesis. Another novel approach is to perform partial knee replacements (Figure 4) where only the damaged parts are addressed. The advantages are preservation of the cruciate ligaments and bone stock such that should revision be required in the future, it will be an easy conversion with a standard TKR as opposed to a complex revision surgery.

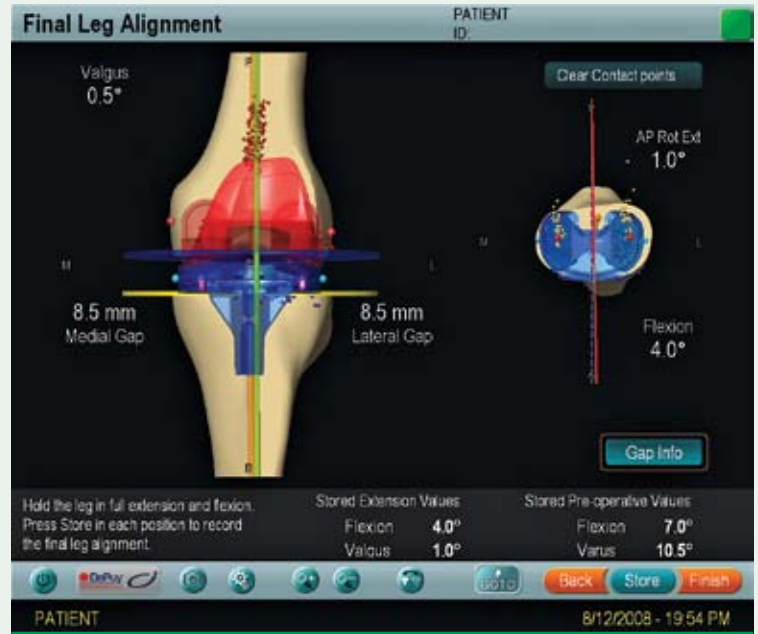


Figure 3.



Figure 4. Medial and Patello-femoral replacement

Management and Care of Dementia

By Dr Nagaendran Kandiah, Associate Consultant, Department of Neurology, National Neuroscience Institute

Dementia is a brain disorder that affects millions of people, mostly older adults. Dementia should be viewed as a “late stage” in the continuum of cognitive difficulties and hence clinicians should aim to identify the prodromal stages of dementia. The diagnosis of dementia requires the presence of dysfunction in memory and other cognitive domains which are progressive, resulting in a decreased level of function.¹ At the stage of dementia the pathological changes in the brain are often well established and profound. Alzheimer’s disease (AD) is the most common cause of dementia and the pathological hallmarks of AD include Beta-amyloid plaques and neurofibrillary tangles. There is evidence to show that these pathological changes begin many years prior to the onset of dementia.² The challenge for physicians would be to identify subtle changes in cognition when the pathological changes are only beginning to develop. These earlier stages of disease have been described using several terminologies including mild cognitive impairment (MCI) and cognitively impaired not demented (CIND).^{3,4} It is crucial that clinicians are able to identify these earliest stages of cognitive impairment as intervention is most likely to be effective when initiated at this early stage.

Epidemiology

In Singapore, the prevalence of dementia and cognitive disorders is likely to increase rapidly over the coming years. We have the fastest ageing population in the Asia-Pacific region with 15-20% of the total population above the age of 65 by the year 2030. At the present time it is estimated that we have about 25 000 patients with dementia and this number is set to increase to 53 000 by 2020.⁵⁻⁷ The prevalence of MCI is presently unclear but based on western prevalence rates of 18.5% at age 50-60 and 35-38% at age greater than 60, it is estimated that we currently have 75-100 000 subjects with MCI.^{8,9}

Etiology and Risk Factors

Dementias are largely neurodegenerative conditions including Alzheimer’s disease, Frontotemporal dementia (FTLD), dementia associated with Parkinsonism and Creutzfeldt-Jakob disease. However, reversible causes such as normal pressure hydrocephalus, neurosyphilis, B12 deficiency, folate deficiency and Hashimoto’s encephalopathy need to be considered and excluded. AD represents the most important cause of dementia followed by vascular dementia. The main pathological hallmarks of AD are the Beta-amyloid plaques and neurofibrillary tangles. The risk factors for the development of this pathology include advanced age, family history, vascular risk factors and APOE4 genotype.^{10,11} It is also increasingly evident that AD and vascular pathology often coexist and manifests as mixed dementia. Optimisation of vascular risk factors such as diabetes mellitus and hypertension is believed to slow the amyloid cascade resulting in

stabilisation of cognitive function among patients with vascular cognitive impairment.

Clinical Presentation

Evaluation of a patient with cognitive symptoms must begin with a thorough history and physical examination. Short term memory is often affected early in the course of dementia and patients may present with difficulty remembering names, misplacing their personal belongings or for being repetitive. Long term memory is often relatively preserved in the early stages of dementia. Problems with visuospatial function may manifest with patients having difficulty finding their way about even in familiar environments. As the dementia progresses, deficits in language emerge with most patients having difficulty finding words and may resort to using alternative words which are simpler. Problems with comprehension are often observed in the moderate to severe stages of dementia. Difficulties in executive function manifests with problems in planning, organising and judgement. Patients may have difficulty with routine tasks such as cooking and driving and are often unable to acquire new skills such as computing. It is always preferable that the cognitive symptoms are corroborated by a family member.

Cognitive evaluation across a range of domains including memory, language, visuospatial function and executive function needs to be performed. Cognitive tests such as the Mini Mental State Examination (MMSE), Frontal Assessment Battery (FAB) and the Montreal cognitive Assessment (MoCA) are valuable in identifying deficits across domains.^{12,13} Adequate emphasis on mood and behaviour is also crucial. Screening for depression with standardised questionnaires should be routinely performed. While clinicians need to be familiar with the typical manifestation of AD, which represents the most important cause of dementia, it is also important to recognise the manifestations of the less common causes of dementia. Patients with frontotemporal dementia for instance may have relatively preserved short term memory but may present with behavioral changes in the form of disinhibited behavior or alternatively they may present with a progressive aphasia. Patients with dementia with Lewy body classically present with vivid visual hallucinations, fluctuating cognition and extrapyramidal features such as tremors or bradykinesia.

Investigations

We are now fortunate to have a wide range of investigational tools including CT brain, MRI brain, PET scans, cerebrospinal fluid (CSF) studies and genotyping. With the availability of such tools which have been demonstrated to have reliable sensitivity and specificity the diagnosis of dementia and MCI should move away from being a



“diagnosis of exclusion” to a “diagnosis of inclusion”. Structural brain imaging with MRI is useful to evaluate for hippocampal atrophy which is the hallmark of AD while disproportionate atrophy of the frontal lobes may be indicative of frontotemporal dementia.¹⁴ MRI is also valuable in demonstrating white matter disease and lacunar infarctions which are suggestive of vascular dementia. Special MRI sequences such as the diffusion weighted imaging (DWI) can demonstrate diffusion abnormalities which are highly specific for Creutzfeldt-Jakob disease. CSF studies of beta amyloid, total tau and phospho-tau have been demonstrated to have a high specificity for the diagnosis of AD. CSF examination is also valuable in managing reversible conditions such as encephalitis and autoimmune encephalopathies. PET scans also can help distinguish between AD and FTLD based on the pattern of glucose hypometabolism.

Management

Management of cognitive disorders requires a multidisciplinary approach including pharmaceutical and non-pharmaceutical management of the patient, caregiver support and provision of long term nursing care. The mainstay of pharmaceutical management includes acetyl cholinesterase inhibitors.¹⁵ Patients who are initiated on AchEIs should be offered the highest tolerable dose for an adequate length of time. Switching from one AchEI to another or switching from an oral formulation to a patch delivery may need to be considered for patients who develop intolerable side effects. Memantine, a NMDA receptor antagonist may be useful for patients with moderate to severe AD. In view of the increased risk of cardiovascular and cerebrovascular events with both typical and atypical antipsychotics, these drugs should be reserved for patients with severe behavioral symptoms. Several disease modifying agents are now in phase 3 clinical studies. They target the amyloid cascade or the production of tau and preliminary studies have demonstrated promising results.

Learning Points

- Cognitive dysfunction manifests along a continuum ranging from mild cognitive impairment to dementia.
- The strongest risk factors for AD are age, family history and APOE genotype.
- While dementia is often secondary to a neurodegenerative pathology, other reversible causes such as normal pressure hydrocephalus needs to be excluded.
- Investigational tools such as MRI and CSF studies can help establish a diagnosis of mild cognitive impairment and early dementia.
- Disease modifying agents are at advanced stages of investigation and have shown promising preliminary findings.

References

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders (1V-TR), 4th edition-text revision. Washington, DC 2000
2. Price JL, Morris JC. Tangles and plaques in nondemented aging "preclinical" Alzheimer's disease. *Ann Neurol* 1999;45:358-368
3. Petersen RC. Mild cognitive impairment as a diagnostic entity. *J Intern Med*. 2004;256:183-94
4. Eby EM, Hogan DB, Parhad IM. Cognitive impairment in the nondemented elderly. Results from the Canadian Study of Health and Aging. *Arch Neurol*. 1995;52:612-9
5. Chiam PC, Ng TP, Tan LL, Ong PS, Ang A, Kua EH. Prevalence of dementia in Singapore--results of the National Mental Health Survey of the Elderly 2003. *Ann Acad Med Singapore*. 2004; 33:S14-5.
6. Asia Pacific Members of Alzheimer's Disease International. Dementia in the Asia Pacific Region: The epidemic is here. *Alzheimer's disease International* 2006. Available at: <http://www.accesseconomics.com.au/publicationsreports/search.php>,
7. Inter-Ministerial Committee on Health Care for the Elderly 1999
8. Barker A, Jones R, Jennison C. A prevalence study of age-associated memory impairment. *Br J Psychiatry*. 1995;167:642-8.
9. Richards M, Touchon J, Ledesert B, Richie K. Cognitive decline in ageing: are AAMI and AACD distinct entities? *Int J Geriatr Psychiatry*. 1999; 14:534-40.
10. Graff-Radford NR, Green RC, Go RCP, et al. Association between apolipoprotein E genotype and Alzheimer's disease in African American subjects. *Arch Neurol* 2002; 59:594-600
11. Casserly I, Topol E. Convergence of atherosclerosis and Alzheimer's disease: inflammation, cholesterol, and misfolded proteins. *Lancet* 2004; 363:1139-1146
12. Folstein MF, Folstein SE, McHugh PR. Mini-mental state: a practical method for grading the cognitive state of patients for the clinicians. *J Psychiatr Res* 1975; 12:189-198
13. Nasreddine ZS, Collin I, Chertkow H, Phillips N, Bergman H, Whitehead V. Sensitivity and Specificity of The Montreal Cognitive Assessment (MoCA) for Detection of Mild Cognitive Deficits. *Can J Neurol Sci*;30:30
14. Jack CR Jr, Petersen RC, Xu YC, Waring SC, O'Brien PC, Tangalos EG, Smith GE, Ivnik RJ, Kokmen E. Medial temporal atrophy on MRI in normal aging and very mild Alzheimer's disease. *Neurology*. 1997 Sep;49(3):786-94
15. Doody RS, Stevens JC, Beck C, et al. Practice parameter: management of dementia (an evidence-based review). Report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology* 2001; 56:1154-1166

EXPANSION OF SERVICES AT NNI COGNITION AND MEMORY CLINIC

NNI Cognition and Memory Clinic

The Cognition and Memory clinic at the National Neuroscience Institute provides a multidisciplinary dementia assessment and management service.

Some of the conditions include :

- Alzheimer's Disease
- Mild cognitive impairment
- Vascular dementia
- Parkinson's dementia
- Frontotemporal dementia
- Dementia with Lewy body
- Hashimoto's encephalopathy
- Creutzfeldt-Jakob disease

Expansion of Services

The clinic is expanding to include the evaluation and management of patients with young onset cognitive disorders. A multidisciplinary approach is particularly important when managing patients with young onset cognitive deficits as they often present with a range of cognitive and psychiatric symptoms. This group of patients will also need greater social and counselling support as they are often in the prime of their lives.

Screening and Diagnosis

Clinical assessment for dementia include :

- Routine cognitive assessment including the Mini Mental State Examination (MMSE) and Frontal Assessment Battery (FAB).
- Further detailed cognitive and neurological examination at the Neuroscience Clinic
- Other appropriate investigations such as neuroimaging with MRI, PET scans, SPECT, cerebrospinal fluid study, EEG and autoimmune screens

Making An Appointment

Tel : (65) 6357 7095

Fax : (65) 6357 7103

Managing Back Pain - An Update

Dr Tan Kian Hian, Director, Pain Management Centre



Discogenic back pain accounts for up to 40% of all causes of chronic back pain.¹ Intradiscal biacuplasty (IDB) is a novel bipolar cooled radiofrequency system for the treatment of degenerative disc disease leading to back pain. Patients with chronic low back pain for more than 6 months, back pain exceeding leg pain, concordant pain on provocative discography, disc height more than 50% of control, and evidence of single- or two-level degenerative disc disease without evidence of additional changes on magnetic resonance imaging will benefit from the procedure. IDB is performed under fluoroscopy using two radiofrequency probes positioned bilaterally in the intervertebral disc. This delivers thermal energy to the posterior aspect of the disc resulting in collagen formation thereby “sealing” the disc as well as reducing aberrant nerve growth in the disc. A study done by Kapural et al in 2008 showed that patients displayed improvements in several pain assessment measures after undergoing IDB for discogenic pain.²

Sacroiliac joint disorders are also common causes of lower back pain and the incidence can be up to 27%.³ Therapeutic solutions include intra-articular injections with short-term pain relief. Radiofrequency (RF) of the joint capsule or lateral branches has been previously reported with variable successes. The new procedure involved using a new radiofrequency technology, which by cooling tissue adjacent to the electrode increases the radius of lesion. The cooled RF is performed on the S1, S2, and S3 lateral branches and of dorsal ramus L5 following two diagnostic SI joint blocks (>50% of pain relief). A case series showed that the majority of patients with chronic SI joint pain experienced a clinically relevant degree of pain relief and improved function following cooled RF of sacral lateral branches and DR of L5 at 3-4 months follow-up.⁴

Pain Management Centre – A One Year Retrospective

The Pain Management Centre at the Singapore General Hospital was officially opened in January 2008. It is the first and largest referral centre in Singapore for patients with persistent and disabling pain disorders. The one-stop centre consists of specialist outpatient clinics, acupuncture services, procedure room with X-ray facilities and recovery room for interventional pain treatment.

On top of providing advanced cutting-edge clinical service to our patients, several milestones were achieved during the past year. It became a multidisciplinary centre with the involvement of a Psychologist running clinics in the centre. We continued to organise well-attended Continuous Medical Education Programs for the General Practitioners on persistent pain, involving Orthopaedic surgeons as well in the interactive sessions. Strong collaborations with

the Pain Association of Singapore resulted in a successful cadaveric workshop on interventional pain procedures that attracted specialists from around the world. The Pain Management Centre also became the first centre outside of Australia and New Zealand to be accredited towards the Fellowship of Faculty of Pain Medicine, Australian and New Zealand College of Anaesthetists. As a result, we continue to attract specialists from around the region who are interested in Pain Management, to join our training programme and research activity.

In order to continue with our endeavor to be a leading centre for interventional pain procedures in the region, new procedures were constantly evaluated and offered to our patients in the past year.

As part of the Pain Management Centre's plan to extend its range of services, the Centre established "Pacing" as one of the Centre's chronic pain management programme. "Pacing" is a multidisciplinary programme involving the pain doctors, physiotherapists, psychologists and nurses to help patients self-manage pain and improve their activity levels. We were the first to implement the Pacing programme in Singapore in October 2008. It aims to educate patients about their pain, how to pace their activities during the day so that activity is regular and consistent; as well as teach patients psychological skills on how to interpret pain and improve their coping abilities. The Pacing programme offers patients with persistent pain a multidisciplinary approach to help increase their activity levels. The inaugural programme has been very well-received by our patients.

As we look forward to the next lap ahead, the Pain Management Centre will continue to adopt a 3-pronged approach in our direction, consisting of clinical services, research and education. With this firmly in place, we will continue to strive to provide latest quality and evidence-based management to our patients.

Reference:

1. Schwarzer AC, Aprill CN, Derby R etc. The relative contributions of the disc and zygapophyseal joint in chronic low back pain. *Spine* 1994;19(7):801-6.
2. Kapural L, Ng A, Dalton J et al. Intervertebral disc biaculoplasty for the treatment of lumbar discogenic pain: results of a six-month follow-up. *Pain Med* 2008;9(1):60-7.
3. Hansen HC, McKenzie-Brown AM, Cohen SP et al. Sacroiliac joint interventions: A systemic review. *Pain Physician* 2007 10(1):165-84.
4. Kapural L, Nageeb F, Kapural M et al. Cooled radiofrequency system for the treatment of chronic pain from sacroiliitis: the first case-series. *Pain Pract* 2008;8(5):348-54.



KKH Adolescent Medicine Service Introduces a Structured & Holistic Approach to Obesity Management

In February 2009, the Adolescent Medicine Department of KK Women's and Children's Hospital (KKH) rolled out a structured programme aimed at managing the issues of overweight and obesity among adolescents.

Working in collaboration with the hospital's other specialties, such as Sports Medicine Service, Nutrition and Psychology Service, the programme will be managed by a multidisciplinary team of experts to address the medical, physical and emotional health, as well as the nutritional aspects of affected children.

Although the overall proportion of overweight children in Singapore has dropped to below 10%, the percentage of obese (severely overweight) children has seen a rise from 2.7% in 1994 to 3.6% in 2007. Earlier initiatives towards obesity management in Singapore were unable to meet much success or participation, mainly due to clashing school hours and cost considerations. The "Trim and Fit" (TAF) programme run in schools too was discontinued due to reports of discrimination towards the overweight child and over-consciousness leading to eating disorders.

Obesity among children is multidimensional in its causes and effects: causes may be genetic, diet-related, environmental and even psychological, and the repercussions may even be life-threatening in terms of medical as well as emotional conditions. This makes it imperative to address all facets of the condition in an effective and holistic manner.

The KKH Obesity Management Programme

KKH's Obesity Management Programme will encourage compliance by scheduling clinical appointments, group counselling, and workout sessions for evenings and weekends. With a balanced mix of individual and group-oriented activities, it is likely to be more affordable than individual counselling sessions.

The group-oriented approach and interaction of the programme is also expected to encourage greater participation and involvement as the children will inspire and support each other in their fitness goals.

The programme is customised to address key concern areas experienced by overweight and obese children. These include convenience of time, medical, fitness and emotional concerns, and even cost considerations. It aims to enhance compliance towards the programme, and bring about a change in attitude and lifestyle.

There are plans to eventually extend this programme to primary school children.

The programme will cater to patients of the hospital as well as referrals from family physicians, polyclinics and Health Promotion Board. It will include a calendar of ongoing medical and risk assessments, fitness assessments and exercise routines, as well as nutritional and emotional counselling, with the objective of seeing changes in patients' medical condition too.

14th Asthma Partners In Care

Date : Saturday, 28 February 2009
Time : 12.50 pm to 5 pm
Venue : SGH Postgraduate Medical Institute
 Singapore General Hospital
 Block 6 Level 1

Contact : SGH Postgraduate Medical Institute
 Fax : 6223 9789
 Email : pgmi.gpcme@sgh.com.sg

Professional Points : Accredited with up to 2 CME/
 2 CPE points

Time	Programme
1250	Lunch & Registration
1400	Introduction & Welcome Address by A/Prof Loo Chian Min
1405	Update of Current Guidelines for Asthma Management by Dr Mariko Koh
1425	Achieving Good Asthma Control – Lessons From Trials in the Primary Care Setting by Prof David Price
1445	Allergic Rhinitis and Asthma by Dr Phua Ghee Chee
1500	Aspirin-sensitive Asthma by Dr Tan Keng Leong
1510	Question & Answer Session
1525	Tea Break & Trade Exhibition
1555	Managing Paediatric Asthma in General Practice by Dr Jenny Tang
1615	Asthma Action Plan Counselling by Mr Kong Ming Chai
1625	Case Studies in Occupational Asthma by Dr Lee Lay Tin
1645	Question & Answer Session
1700	End



GP Seminar on "General Neurology (Headache and Giddiness)"



Date : 7 March 2009

Time : 1.45 pm - 4 pm (inclusive of Buffet Lunch)

Venue : NNI Exhibition Hall, Basement 1,
National Neuroscience Institute,
11 Jalan Tan Tock Seng



Topics

- + Diagnosis and Management of Migraine, Tension and Cluster headache
- + Medication-overuse Headache & Rare Primary Headaches the GPs should know
- + Approach to Diagnosis and Management of Giddiness (with video demonstration)

CME points : No. of points to be determined.

Enquiries & Registration

National Neuroscience Institute

Tel : 6357 7163
Fax : 6256 4755
Email : nni_secretariat@nni.com.sg
Website : <http://www.nni.com.sg>



HOTLINE NUMBERS

GPEP HOTLINE : 6557 2233

SOC FAST TRACK APPOINTMENT CONTACT NUMBERS

CGH Changi General Hospital	6788 3003	NHC National Heart Centre Singapore	6436 7848
SGH Singapore General Hospital	6321 4402	SNEC Singapore National Eye Centre	6322 9399
KKH KK Women's and Children's Hospital	6294 4050	NNI National Neuroscience Institute @ SGH	6321 4402
NCCS National Cancer Centre Singapore	6436 8288	NNI National Neuroscience Institute @ TTSH	9637 9718
NDCS National Dental Centre Singapore	6324 8798		

DIRECT WARD REFERRAL CONTACT NUMBERS

CGH Changi General Hospital	6850 1648	KKH KK Women's and Children's Hospital	6394 1183
SGH Singapore General Hospital	6321 4822		

Members of the SingHealth Group

