Annals, Academy of Medicine, Singapore **Vol. 40 (Suppl) No. 7 July 2011**

PROCEEDINGS OF 45th Singapore Malaysia Congress of Medicine 2011

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Organised by:

Gordon Arthur Ransome Oration

L1 Bridges and Gaps in Healthcare

York Chow
Food and Health Bureau Government Secretariat, The Government of Hong Kong Special Administration Region

No healthcare service system is perfect, and healthcare reform is always a popular item on the political agenda of any government.

The advances in medical science and technology have improved the outcomes and options in healthcare, particularly over the past 30 years. This has, however, generated many challenges for patients, medical staff, healthcare providers and governments. With diverse changes in the healthcare market by these stakeholders, many gaps and issues have emerged, resulting in a slow down in progress, and even occasional disharmony and conflict.

Healthcare reform is a continuous process and its success is largely dependent on the professional leadership and teamwork within the medical profession. Their influence on and contribution to the health status of our society cannot be underestimated.

The Hong Kong experience also demonstrates some of these challenges, so measures were developed and policies were implemented to bridge them. These experiences in terms of strategies and philosophies will be described, analysed and summarised.

Rumme Shaw Memorial Lecture

L2 Liver Transplant: Yesterday's Dream, Today's Reality, Tomorrow's Platform towards Excellent Patient Care

Chen Chao Long
Kaohsiung Chang Gung Memorial Hospital, Taiwan

Liver transplantation has come a long way since its first successful clinical application by Thomas E. Starzl in 1967 at the University of Colorado. As Starzl has aptly described, liver transplantation was an operation that was inconceivable during the latter half of the 20th century, and barely achievable during his time, has become routine today. There is no question that liver transplantation has saved countless lives. And there is also no question that liver transplantation has been an accepted treatment for end-stage liver disease since the 1980s.

The first successful liver transplantation in Asia was performed in an adolescent with Wilson's disease complicated by end-stage liver cirrhosis in 1984. The longest Asian survivor, also with Wilsonian cirrhosis, has now been living for 25 years. The development of living donor liver transplantation (LDLT) was driven by the perennial lack of deceased organ donation and a response to the growing demand for the option of liver replacement. In Asia, the first LDLT was performed in a child in 1989. Later experience soon led to a wider application in biliary atresia, neonatal hepatitis, in fulminant or acute chronic liver failure, and other metabolic diseases of the liver treatable by transplantation. LDLT is now performed with high rates of success due to judicious donor and recipient selection, careful preoperative planning, excellent anaesthesia management, and prompt detection and treatment of complications. Advances in adult LDLT demonstrate survival benefits over deceased donor liver transplantation as regards to decreasing the waiting time.

Long-term survival has been always related with immunosuppression regimen that influences outcome affecting renal dysfunction and toxicity, post-transplant malignancies, post-transplant diabetes, recurrent disease in hepatitis and hepatocellular carcinoma, late rejections and infections. Newer drugs do not equate with lesser complications. Rather, improvement in how we can find new use to old drugs is now the norm. Less immunosuppression as long as hepatic function is maintained at an acceptable level decreases the chances of long-term complications related to immunosuppression use.

Liver transplantation is not just a medical issue but a social interest as well. The number of manpower hours lost due to frequent hospitalisations, infections, and disease progression by a working class patient who needs liver transplant translates to millions of dollars. It is also not just a private matter between physician and patient but becomes a social responsibility because of the involvement of a third party donor. Whether the liver allograft comes from a deceased or living donor, the state or society has the responsibility of promoting as well as protecting the source because it is for the common good. The decision to perform LDLT has complex emotional, social, and ethical implications. In the context of a family member who needs a liver, LDLT is generally perceived as and is sometimes a life-saving procedure.

As liver transplant programmes mature, we have the responsibility to share our experiences, forge collaborations, help establish new transplant programmes, and train the younger generation of transplant personnel to save more lives and ensure the survival of this evolving technology.

Galloway Memorial Lecture

L3 What Ails the Populace: The Singapore Mental Health Study

Chong Siow Ann
Department of Early Psychosis Intervention, Institute of Mental Health, Singapore

The Singapore Mental Health Study which is funded by the Singapore Millennium Foundation and Ministry of Health is a 3-year population-based epidemiological study of the Singapore population. The study—which uses cutting edge epidemiological techniques and methodologies—sets out to establish high quality baseline information on the prevalence of certain key mental disorders in the adult Singaporean population, the associated factors of these disorders, the level of unmet needs in terms of the treatment gap and delay in seeking help, and estimates the social and economic impact of these disorders.

A total of 6616 Singapore residents (including Singapore Citizens and Permanent Residents) aged 18 years and above living in Singapore were interviewed in depth in a household survey. The main phase of the study was launched on 1 December 2009. The first household was contacted on 2 December 2009 and the last interview was completed on 5 December 2010. The response rate was 75.8%.

The findings of the study show that mental disorders are not uncommon in Singapore — the most prevalent is Major Depressive Disorder which is also more prevalent among females, those who are divorced/separated/widowed, and those of Indian ethnicity. There is a high comorbidity of mental disorders and chronic physical conditions. A majority of those with mental disorders have not sought professional help and when they do, it was after a long delay.

This presentation discusses some of the key findings of the Singapore Mental Health Study within the context of some of the limitations of such a large study, as well their implications with reference to Singapore's first ever National Mental Health Policy and Blueprint. The relevance and importance of such a population-based survey to informed and rational policy making will be highlighted.

Seah Cheng Siang Memorial Lecture

L4 Improving Survival Outcomes for Gastric Cancer

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[2]Department of Gastroenterology & Hepatology, National University Hospital

Gastric cancer is the fifth commonest cancer in men in Singapore and frequently, a fatal disease. The Singapore Gastric Cancer Consortium (SGCC) is a translational research group comprising clinicians and scientists working with the aim of improving survival outcomes. The twin strategies to improve survival comprise early detection by screening and improving treatment by using genomic profiling to select appropriate therapy.

Early detection is a principal strategy to improve survival outcomes. In current practice, such early diagnosis is only achievable by endoscopic screening, as there is presently no reliable blood marker. A pre-disease high-risk cohort (Gastric Cancer Epidemiology Programme, GCEP cohort) comprising 3000 subjects (age >50 years) was recruited to explore the feasibility and yield of endoscopic screening in our population. Ten patients were detected with early cancers in the first 1600 patient-years of surveillance, marking the first time that screen-detected gastric cancer has been diagnosed in Singapore. Biomarker discovery using proteomics and other strategies have yielded candidate biomarkers. The ultimate aim is to develop a cost-effective screening strategy for the Singapore population.

To improve treatment results, our strategy is to apply genomic profiling to select appropriate therapy. Gene expression profiling of a panel of gastric cancer cell lines identified the "GEMINI" signature, which was predictive of survival as well as drug response in our patient cohort. This is now being prospectively tested in clinical trials.

We believe that population survival rates for gastric cancer can be improved by a combination of preventive and therapeutic strategies.

College of Physicians Singapore Lecture

L5 Palliative Care in Singapore—Good Medicine given with Compassion

Cynthia R Goh
Department of Palliative Medicine, National Cancer Centre, Singapore

In March 1994, the Annals of the Academy of Medicine Singapore for the first time devoted a whole issue of the journal to Hospice and Palliative Care. The title of this talk is taken from the Editorial to that issue, written by the joint editors, Dr VK Sethi and myself. Since that time, Palliative Medicine was recognised as a medical subspecialty in 2006. Advance specialist training in Palliative Medicine was instituted from 2007 and 8 doctors have completed the training. Together with 28 specialists grandfathered into the subspecialty in 2011, the subspecialty is set to have 36 accredited and registered specialists in Palliative Medicine. This year also marks the formation of the Chapter of Palliative Medicine at the College of Physicians, Singapore as the 15th chapter of the College.

Despite this, and the increasing number of palliative care services in Singapore, there is still much misunderstanding as to what palliative care is. Both medical practitioners and patients and their relatives still believe that going for palliative care means giving up on treatment or giving up hope, things most people try to avoid.

Over the past 45 years since the modern hospice movement started, palliative care has evolved from care of patients at the very terminal stages of life, to cover progressive life-threatening illness at a much earlier stage when disease-modifying treatment is still effective, but where symptom palliation, optimisation of function and sustenance of morale plays a major role in enhancing quality of life and the fight against cancer. The diseases covered by palliative care expanded from cancer to neurological degenerative diseases, organ failures, and frailty and dementia.

Increasingly, there is evidence to show that far from shortening life, patients with advanced disease receiving palliative care may actually survive longer than patients on aggressive disease treatment. This may be explained by the avoidance of dangerous therapy in a frail population, and the beneficial effects of a higher quality of life and maintenance of the will to live.

The essence of palliative medicine goes back to the basics of practising good medicine. Astute clinical evaluation, and avoidance of over investigation and over treatment by thinking through the consequences of each action is key. The core skills that need to be honed include pain and symptom management, excellent communication skills and ability to function in an interdisciplinary team. Carefully eliciting a patient's own goals by going to listen to a frail patient, and discussing with family members is part of good doctoring. Keeping abreast of medical advances in the relevant fields in order to advise one's patients is a requirement. Compassion and empathy, the ability to be with the patient, with commitment to care for the patient through thick or thin is the hallmark of a good doctor, something that we all aspire to. Perhaps what is unique is that at the end of life, more than at any other juncture, our patients need us to have the combination of all these skills which brings out the best in us and the best in our patients.

2nd College of Ophthalmologists Lectureship

L6 The Singapore Malay Eye Study—Key Findings, Public Health Messages and Clinical Implications

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[2]Cataract and Comprehensive Ophthalmology Service, Singapore National Eye Centre
[3]Vitreo-Retinal Service, Singapore National Eye Centre

Malay people are an indigenous group of people residing mainly in Malaysia, Singapore, Indonesia, and other Southeast Asian countries. It is estimated that there are 300 million Malays in Southeast Asia alone. In Singapore, nearly 14% of the population is Malay. Before 2005, there were few studies on the prevalence, risk factors and impact of eye disease and visual impairment within this population. The Singapore Malay Eye Study (SiMES) is a population-based epidemiological study designed to address this important gap in knowledge. SiMES examined 3280 (78.7% response rate) randomly selected persons of Malay ethnicity aged 40 to 80 years living in the south western area of Singapore. All study participants underwent a comprehensive history and eye examination, retinal, lens and optic disc imaging, and had blood collected for biomarkers and genetic analyses. Key findings include documentation of the prevalence and causes of vision impairment and the major eye diseases, such as diabetic retinopathy, age-related macular degeneration, glaucoma and cataract. The data in this paper the first comprehensive evaluation of common eye diseases amongst Malay people, with implications for public health education and clinical disease management.

Innovate, Integrate & Incubate: Infectious Disease Updates 2011

S1.1 Tough Cases in Travel Medicine (Interactive)

Limin Wijaya
Department of Infectious Disease, Singapore General Hospital

The travel industry continues to expand, as air travel is more affordable. Global tourism is a leading leisure activity. Tourism and business are most frequent reasons for travelling, however, other purposes such as missionary or volunteering work, pilgrimage, visiting friends and relatives are also increasing. People are also increasingly more adventurous and are travelling to more exotic countries, off the beaten path.

Travel medicine has emerged as an interdisciplinary specialty with the prevention of infectious disease, personal safety and recommending specific risk reduction via vaccinations, medications or repellants and specific advice tailored to the traveller and the itinerary. The discipline is also involved in the care of these returned travellers who may experience health problems related to their travel. Here we will look at the various scenarios, which will highlight the risks and issues with regards to provision of appropriate advice to the traveller and management of returned travellers.

S1.2 Bridging the Gap: The PDV Programme at Tan Tock Seng Hospital

Lim Poh Lian
Infectious Disease Clinic, Tan Tock Seng Hospital

Substantial gaps exist between accepted recommendations and actual practice.

Although evidence indicates clear clinical benefits from vaccinating high-risk patients against influenza and pneumococcus, vaccine uptake in Singapore remains low.

Since patients with comorbidities constitute a large proportion of our inpatients, hospitalisation represents a missed opportunity for this simple, effective intervention.

Since December 2010, TTSH has piloted an innovative Pre-Discharge Vaccination (PDV) programme, the first in Singapore. This hospital-wide initiative integrates influenza and pneumococcal vaccination into standardised pre-discharge procedure for inpatients with appropriate medical indications. Patients and families may opt-out, if desired. PDV also removes the out-of-pocket expense to patients by utilising Medisave.

Pharmacists screen patients for indications and contraindications according to a pre-approved checklist. Treating clinicians may endorse or over-ride PDV orders. Vaccine is administered on the day of discharge by the nurse, and information sheets are given to the patient. Concerns about safety and effectiveness are addressed through FAQs.

Over 1056 patients were screened per month, of whom 584 (55%) were eligible for PDV. Two hundred and four of the 324 patients (63%) who were offered PDV, agreed to participate. However, doctor uptake was only 65%—132 of the 204 were prescribed PDV, and 108 received PDV prior to actual discharge—8.5% of those eligible. The main barriers to PDV uptake include awareness of this programme and concern about adverse effects. However, this programme enabled over 100 patients per month to get vaccinated who would not otherwise have received the vaccines. The data collected also allow us to focus further efforts in bridging the gap, and improving care for our most vulnerable patients.

Wound Care in the Diabetic Patients

S2.1 Wound Bed Preparation

Ong Yee Siang
Department of Plastic, Reconstructive and Aesthetic Surgery, Singapore General Hospital

Wound bed preparation is an important concept with significant potential as a tool in wound management. The sequence of events in healing of acute wound has been extensively studied and this knowledge has been extrapolated to healing of chronic wounds. However, the chronic wound healing process differs in many important respects from that in acute wounds. In chronic wounds, the orderly sequence of events seen in acute wounds becomes disrupted or "stuck" at one or more of the different stages of wound healing. For the normal repair process to resume, the barrier to healing must be identified and removed through application of the correct techniques. It is important, therefore, to understand the molecular events that are involved in the wound healing process in order to select the most appropriate intervention. Wound bed preparation is the management of a wound in order to accelerate endogenous healing or to facilitate the effectiveness of other therapeutic measures.

S2.2 Wound Care in General Practice

Cheong Pak Yean
Yong Loo Lin School of Medicine, National University of Singapore

Diabetic wound encountered in general practice can be divided into: (1) acute injury and (2) chronic ulceration. Acute injury may be trivial e.g. an abrasion from the toe kicking against an obstacle while walking, or injudicious cutting of toe nails resulting a cut into the nail fold. Unattended to immediately, infection may set in, and a roaring cellulitis could soon result, especially if the circulation is poor. If the patient is seen at the stage of acute wound infection and the circulation is poor, the correct step is to refer the patient for aggressive treatment as an inpatient. Outpatient treatment with oral antibiotics is never enough. To attempt an incision and drainage is to court trouble. In a diabetic patient with a chronic ulceration, the cause is likely to be neuropathic foot disease. Evaluate the foot for sensation loss, circulation, deformity, and infection. Non-infected, and non-ischaemic neuropathic ulcer heals when the area is off-loaded. Off-loading is combined with appropriate wound care. The dressing to use at various stages are: (i) debridement stage—hydrogels, (ii) granulation stage—foam and low-adherence dressings, (iii) epithelisation stage—hydrocolloid and low-adherence dressings. Referral for surgical off-loading i.e. correction of foot deformity, and wound closure procedures will be necessary if conservative treatment fails. General measures of diabetes control, foot hygiene, and adequate nutrition should not be overlooked. Patient education, protective footwear and orthoses, and prophylactic reconstructive surgery are long-term preventive measures. The general practitioner works in collaboration with his surgical colleagues in diabetic wound care.

S2.3 Plastic Surgery Reconstruction of the Diabetic Foot

Leo Kah Woon
Department of Plastic, Reconstructive and Aesthetic Surgery, Singapore General Hospital

Diabetes Mellitus is a common disease especially in South East Asia. Traditionally, diabetics with poor glycaemic control with lower limb wounds invariably end up with lower limb amputations. However, with the advent of microsurgery in plastic surgery, microsurgical techniques have proven to be very useful in reconstruction even in diabetic patients.

Additionally, revascularisation followed by microsurgical free tissue transfer has proven to be a valuable alternative to amputation in patients with major soft tissue loss requiring soft tissue reconstruction.

Furthermore, the increasing knowledge in perforators of the lower limbs has also resulted in more options for reconstruction. Pedicled flaps like the distally based sural neurovenocutaneous flaps and the medial plantar artery flaps can be safely used for reconstruction.

At the Interface of Obstetrics & Gynaecology

S3.1 Understanding Impact of Peripartum Mood and Anxiety Disorders and how to Intervene Early

Chua Tze-ern
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Although pregnancy is typically seen as a time of happy anticipation, it is also a period of high physical and emotional stress. Mothers with emotional disorders find it particularly difficult to cope with the demands of parenthood, and their children are at higher risk of birth complications and neurobehavioural problems. These, in turn, take a toll on familial and socio-occupational functioning.

In this light, the following peripartum psychiatric disorders will be discussed:

- *Depression*, which occurs in about 10% of expectant and newly-delivered mothers;
- *Anxiety*, which frequently accompanies depression and commonly takes the form of obsessive-compulsive symptoms;
- *Puerperal psychosis*, which, though rare, is a serious and potentially dangerous illness

Despite being common and impactful, these disorders are sometimes overlooked. One reason is that the stigma and a lack of awareness prevent afflicted women from seeking help; another is the clinical challenge of providing treatment that is both effective and safe.

At the same time, clinical data from the MOH-KKH Postnatal Depression Intervention Programme show that screening and early intervention in postpartum mental illness produce >80% improvement in symptom severity, functionality and health-related quality of life. This shows that understanding the presentations and treatment options of these disorders is crucial to the provision of holistic obstetric management.

S3.2 Preconception and Risk Management Issues in Pre-Existing Mental Illness

Theresa Lee
Mental Wellness Service, KK Women's and Children's Hospital

Women with pre-existing psychiatric illness such as depression often consult regarding the use of psychotropic medications during pregnancy. Very often, the pregnancies are unplanned and the women stop their medications abruptly once they discover they are pregnant. However, they run the risk of relapse and a recent study by Cohen 2006 estimated that women who discontinued their antidepressant medication were 5 times as likely to relapse as those who maintained on treatment. High rates of relapse were also observed in those with bipolar disorder. Similarly, women with schizophrenia also face obstetric risks, and some of these issues arise preconception, as antipsychotic-induced hyperprolactinemia can affect fertility. Hence it becomes the clinician's dilemma whether to discontinue or maintain the women on treatment during her pregnancy. The decision is made after a thorough risk/benefit analysis, weighing the risks of untreated psychiatric illness of the mother and its effect on both mother and child versus the risks of fetal exposure to medications.

The talk will cover the management issues in the more common psychiatric illness namely depression, bipolar disorder and schizophrenia, using case studies to illustrate the points.

S3.3 Psychological Issues Related to Infertility and Perinatal Loss—Grief Issues in Miscarriage, Abortion, Stillbirth and Neonatal Death

Helen Chen
Mental Wellness Service, KKWomen's and Children's Hospital

Infertility is often an unspoken burden that affected couples struggle to cope with, and assisted reproduction, though fulfilling a much wanted wish, also presents psychosocial challenges. Similarly, for women who have suffered a perinatal loss, whether from miscarriage, induced abortion, stillbirth or neonatal death, pain and grief can be difficult. Recent evidence in these areas will be discussed, including the prevalence of depression, anxiety and post-traumatic stress disorder in these patient groups, as well as some of the pertinent psychological issues gathered from qualitative research methods.

Local data case studies and the clinical audit of the KKH Perinatal Psychiatric Service will be summarised. In the past decade, there has been a shift in recommendations in pastoral care for women who have had a stillbirth. Post-abortion syndrome also remains a controversial diagnosis despite clinical evidence that it exists. Understanding how women experience these difficult events can help inform our provision of the best practices in perinatal mental health.

S3.4 Psychological Consequences of Cancer

Choo Chih Huei
Mental Wellness Service, KKWomen's and Children's Hospital

With improvement in detection and treatment of gynaecological and breast cancers, more women are facing cancer as a chronic illness. The main psychological challenges cancer survivors have to deal with include uncertainty, thread and loss. Some degree of emotional distress is unavoidable in coping with a potentially life threatening illness and a proportion of patients will develop clinical anxiety and depression. However, the utilisation of psychosocial services among cancer patients with cancer is low. Screening instruments such as the distress thermometer have been developed to identify patients who might benefit from psychosocial interventions. On a positive note, cancer survivors can experience post-traumatic growth by seeing themselves, others and the world in a different way.

Radiological Advances in Oncology

S4.1 Can National Radiotherapy Reorganisation Lead to Better Outcomes?

Jane Barrett
The Royal College of Radiologists, London, UK

UK outcomes for cancer have lagged behind those in other Western countries and historically, there have been long waiting times for radiotherapy treatment as shown by Royal College of Radiologists waiting times surveys in 2003 and 2005.

The National Radiotherapy Advisory Group (NRAG) was set up in England in 2005 under the co-chairmanship of Professor Sir Mike Richards (National Cancer Director) and Dr Michael Williams (Dean, Faculty Oncology, RCR) to look at the issues and propose solutions. The report, published in 2007, concentrated on 6 main areas:

1. Scenario planning to assess the real demand for radiotherapy in the country.
2. Capacity and efficiency, examining the productivity of the service.

3. Workforce, looking at recruitment, and retention, and balance of the different professions involved in radiotherapy.
4. Technology, studying the newer forms of radiotherapy and their adoption in England.
5. Protons, looking at a national solution for patients requiring proton therapy.
6. Accurate data collection for radiotherapy to inform decision-making.

Following the NRAG report publication, the National Radiotherapy Implementation Group has looked at how to improve English outcomes emphasising these particular areas.

The other devolved nations of Scotland, Wales and Northern Ireland have also been involved in some of these changes.

This presentation will demonstrate the changes to services and the improvements made in the last 4 years and discuss the future of UK radiotherapy.

S4.2 An Overview of Breast Cancer Imaging

Humairah Samad Cheung
College of Radiology, Academy of Medicine Malaysia

Several imaging modalities are applied in breast cancer imaging; these modalities may be grouped into those that are primarily used

1. for early *detection* of breast cancer, and
2. during the *treatment and management* phases of the disease.

The main imaging modalities used in breast cancer imaging are

- mammography
- breast ultrasound
- breast tomosynthesis
- breast MRI
- breast MR spectroscopy
- nuclear medicine including PET-CT

The roles and indications for these modalities in breast cancer imaging will be reviewed and presented.

Imaging Detection of Breast Cancer

Early breast cancer detection requires the ability to demonstrate non-palpable, small (<1.0 mm diameter) invasive and in-situ malignancies, especially in mass screening programmes. This is the established realm of *mammography*, which is the only screening modality proved to reduce mortality from breast cancer by up to almost 50%.[1] Mammography is currently used in breast cancer screening programmes in many countries, and new mammographic technologies including *Full Field Digital Mammography (FFDM) and breast tomosynthesis*[2] have evolved and are being introduced to increase the accuracy of detection of breast malignancies.

Mammography is often supplemented by *breast ultrasound*,[3] MRI[4] and *image-guided biopsy* procedures using stereotaxis, ultrasound or MRI. Breast MRI is a useful modality for cancer detection in high-risk women.[5] It is also used in staging in women requesting breast conservation surgery to exclude multi-centric disease.

The ACR-BIRADS system[6] of classifying lesions shown on mammography is widely used by many radiologists to communicate the results of mammography to the referring clinician, in both asymptomatic and symptomatic women. As breast cancer is currently managed by multi-disciplinary teams, understanding the terminology used by the different team members facilitate appropriate patient management.

Imaging in Breast Cancer Management

Information regarding treatment responses may require other modalities such as breast ultrasound, breast MRI, MR spectroscopy[7] and FDG PET and PET/CT.[8] Mammography is less useful in post-surgical breast cancer patients being assessed for possible residual disease or recurrence due to post-surgical scarring. In these situations, breast MRI and PET/CT will prove more effective. FDG PET and PET/CT have been shown to be particularly useful in the detection of recurrence and distant metastases, restaging of breast cancer, evaluating treatment response and as a problem-solving method when conventional imaging results are equivocal.[8] The main shortcoming of PET/CT is its low spatial resolution resulting in a low sensitivity in detecting lesions smaller than 10 mm and well differentiated breast cancers. As such, it is not recommended for breast cancer detection.

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S4.3 Temporal Lobe Necrosis Following Radiotherapy for Nasopharyngeal Carcinoma—30 years of Experience in Combined Clinical Oncology-Neurology Clinic at Queen Elizabeth Hospital, Hong Kong

Law Chun Key
Queen Elizabeth Hospital, Hong Kong

Since 1964, hypofractionation radiotherapy (RT) for nasopharyngeal carcinoma (NPC) due to the shortage of machine resulted in many late neurological complications. Hence, a combined oncology-neurology clinic was set up in 1981. Our early experience of using intermediate-term high dose steroid liberally came with a high price.[1]

In early 1990, MRI revealed that complete regression of TLN and its associated oedema with steroid was a myth, its use became restricted only to patients with life threatening complications including those with mid-line shift of the brain on imaging. Meanwhile, the use of controlled release form of carbamazepine since 1991 greatly enhanced patients' compliance in controlling temporal lobe epilepsy (TLE). Surgery in the early stage has also become more popular.[2]

Currently, the clinic has collected over 600 genuine TLN cases without concurrent local recurrence of NPC, of which 23% had received more than one radical course of RT. The male to female ratio was 2:1, with a median age of 55 at time of diagnosis. The median latency was 8 years, more than previously reported due to the longer observation period. The vast majority was symptomatic, TLE and poor memory being commonest. Associated cranial nerve palsies caused many life-threatening aspirations due to swallowing difficulties. Endocrine dysfunctions were also common. Surgery had been performed in 55 patients. Since 2000, short-term steroid, in pulse form, is only prescribed for patients with significant mass effect. The 5-year overall survival period just exceeded 60% with poor quality of life in a significant portion of patients.

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S4.4 Advances of Interventional Radiology in Oncology

Yasuaki Arai
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Interventional Radiology (IR) has very high potential in the management of cancer patients because of its quickness and less invasiveness. IRs in oncology field are classified into 3 categories. The first is "to treat regional cancer lesion," and this includes arterial chemoembolisation, arterial infusion and percutaneous ablation therapy such as ethanol injectionand radio-frequency ablation (RFA). The second is "to restore abnormal state caused by cancer," and it includes various IRs such as (i) stenting into biliary, alimentary, broncheal and venous stenosis, (ii) drainage or shunting of pericardial, pleural and peritoneal fluid, (iii) cement injection to unstable bone lesions and (iv) RFA for painful tumour. The third is "to make procedure safer and more secure," and this includes image guided central venous catheter insertion, neurolyticceliac plexus/splanchnic nerve block and image guided tubing into alimentary tracts. As the new IR techniques, percutaneous

cryo therapy, irreversible electric poration (IREP), focused ultrasound (FUS), percutaneous transesophageal gastric tubing (PTEG), transjugular transhepatic peritoneovenous shunting (TTPVS) have been introduced. Because of the improvement of guiding images and IR technologies, the usefulness of IRs has shown great advances in the last decade. However, most of these IRs are still options at the present moment, because there has been no evidence led by clinical trials. To make these IRs the choice of treatment in the oncology field, evaluation based on prospective clinical trial manner must be carried out.

Palliative Medicine Symposium

S5.1 Palliative Medicine as Part of Mainstream Medicine—Milestones and Challenges

Pang Weng Sun
Geriatric Medicine, Khoo Teck Puat Hospital

While the fundamental concepts of palliative care are not new, palliative medicine as a medical discipline has a relatively short history, arising from the work inspired by Dame Cicely Saunders in United Kingdom in the 1960s and 70s. Concepts of palliative medicine and hospice care evolved first in community settings before introduction into hospitals. UK was the first country to accord Palliative Medicine specialist status in 1987. Palliative care was first introduced in Singapore in the 1980s when St Joseph's Home set aside beds for hospice care. Home hospice care evolved and the early 90s saw a rapid increase in hospices and home hospice care, culminating in the setting up of Singapore Hospice Council as an umbrella body for hospice work. Hospital based palliative care services in Singapore were initiated in 1996 and palliative medicine is now recognised as a subspecialty of internal medicine, geriatrics, oncology and family medicine. Defining palliative medicine has been a challenge—terms like palliative medicine, palliative care, hospice care, terminal care, end-of-life care overlap. Likewise, the stage at which a patient is considered to be at the end-of-life, terminally ill or dying are equally difficult to define. This is compounded by the need to have a working definition that allows planning of service delivery and funding, which may vary from country to country. Today, while these concepts are still debated, the need for palliative medicine remains clear.

S5.2 Caring for the Person vs Treating the Disease

Noreen Chan
Department of Haematology-Oncology, National University Cancer Institute, National University Hospital

Much of modern medical practice is founded on discoveries of the pathophysiological processes that lead to ill health, and research has increasingly focused on the molecular and genetic basis of diseases. There are no longer just body system specialists, but subspecialists of a particular function e.g. a cardiac rhythm specialist.

This reductionist approach has its merits, but may not be able to meet the multi-dimensional needs of patients living and dying with chronic, progressive illness. In addition, as the population ages, there will be more and more people with multiple comorbidities, which increases the chance of fragmented care from multiple specialists.

When cure is not possible, and even disease control beyond reach, it is essential to take a patient-centred, as opposed to purely disease-focused approach. This involves discussion of patients' goals and preferences, careful balancing of treatment benefits and burdens, and coordination and continuity of care across settings.

"Suffering is experienced by persons, not merely by bodies, and has its source in challenges that threaten the intactness of the person as a complex social and psychological entity."
The nature of suffering and the goals of medicine.
EJ Cassell NEJM March 1982

S5.3 Can Palliative Care be Innovative?

Mervyn Koh
Department of Palliative Medicine, Tan Tock Seng Hospital

Palliative care has come a long way in Singapore since its advent in the 1980s under our pioneers Prof Cynthia Goh, Dr Rosalie Shaw and Sister Geraldine. Today, it is officially recognised as a subspecialty by the Academy of Medicine and there are palliative care units in every tertiary hospital in Singapore caring for both cancer and non-cancer patients. In the community, we are supported by 4 inpatient hospices, 2 hospice day care centres and 6 home care services.

Having established itself in the "mainstream" of hospital medicine and home care for cancer patients, a "call" for Palliative Medicine to "innovate and cast its net wider" to be involved in the care of patients with chronic end-stage organ diseases and patients with advanced dementia in nursing homes came towards the end of the last decade.

The NHG-ACP (National Healthcare Group-Advanced Care Programme) was born in 2007; caring for patients with advanced heart, lung and renal failure at home, addressing their symptoms and caregiver needs.

Project CARE (Care At the end-of-life for Residents in Elderly Homes) was another initiative launched in 2009 where a designated palliative care team of physicians, nurses and social workers went into 7 voluntary nursing homes to support the nursing home team in advanced care planning and palliative care of terminally ill patients in these homes.

We will share with you the interesting journey of these 2 projects in this lecture of how palliative care has gone beyond its usual boundaries, making itself relevant to those who are in need.

Controversies and Innovation in Emergency Medicine I

S6.1 Innovation in Resuscitation

Marcus Ong
Department of Emergency Medicine, Singapore General Hospital

In this talk, we highlight recent advances in resuscitation, such as improving the quality of CPR, use of mechanical CPR, advances in defibrillation, therapeutic hypothermia after cardiac arrest and advanced cardiac arrest prediction. We also show that it is possible to improve outcomes for cardiac arrest, and highlight some of our local research and experience.

S6.2 Telestroke Service

Camlyn Tan
Department of Accident and Emergency, Changi General Hospital

There is convincing evidence of the benefits of IV thrombolytics (rTPA) in the acute ischaemic stroke patient. With the significant numbers of new stroke cases diagnosed each year and the ageing population, and the slow turnover of stroke specialists, we face a crisis of neurologist shortage for acute stroke care. Hospitals and institutions face the challenge of getting acute stroke patients assessed for suitability for thrombolytics.

The telestroke service in Changi General Hospital presents a novel way of bringing neurological consult to acute stroke patients in the emergency department, in a centre where there is no round-the-clock neurology coverage.

As a result, many more patients are given the opportunity to be assessed for treatment with evidence-based stroke therapy.

Implementation challenges and relevant data since the inception of the service are also presented.

S6.3 Early Goal Directed Therapy: Controversies and Current Opinion

Malcolm Madhavan
Emergency Medicine Department, National University Hospital

At the end of the session, the participant would

1. Be brought through a reviewer's seminal paper on Early Goal Directed Therapy: basis, strengths, weakness, reproducibility: internationally as well as the South East Asian experience (ATLAS study).
2. Be brought through a review the body of evidence to suggest that bundled resuscitation is better than "wild" resuscitation.
3. Be able to outline and discuss the challenges, unresolved questions and research opportunities that lie ahead on sepsis management.
4. Be able to outline an effective strategy based on current evidence for best practice in early phase sepsis management.

S6.4 Crisis Standard of Care

Steven HC Lim
Department of Accident and Emergency, Changi General Hospital

Following public health emergencies and disasters, surge capacity plans are set into action to prepare for patient surge. What happens when the healthcare demand outstrips supply? In a scarce resource environment, it will be unrealistic to expect similar outcomes. Some people with clinical conditions that are survivable under usual healthcare system conditions may have to forgo life-sustaining interventions owing to deficiencies in supplies or staffing.

"Crisis standards of care" is defined as a substantial change in usual healthcare operations and the level of care it is possible to deliver, which is made necessary by pervasive (e.g. pandemic influenza) or catastrophic (e.g. earthquake, hurricane) disasters.

This change in the level of care delivered is justified by specific circumstances. Controversy exist on whether there should be only "one standard" or "many standards".

Issues that require address when developing crisis care protocols, some ethical and legal considerations will be shared and discussed.

Hypertension Symposium

S7.1 BP Monitoring, Central Aortic BP Monitoring

Ong Hean Yee
Cardiology Department, Khoo Teck Puat Hospital

The first blood pressure recorded by Stephen Hales from a horse in 1727 was arguably a central aortic blood pressure. However, non-invasive measurement of blood pressure using the Riva-Rocci and Korotkoff method and the cuff sphygmomanometer became de rigueur as they were easily and safely performed at the bedside. Hence, the vast bulk of our evidence for the deleterious effect of hypertension and subsequently its management is based on the trusted cuff sphygmomanometer or variations of it.

With the advent of non-invasive methods of estimating central blood pressure using digital waveform analysis, there has been renewed interest in this hemodynamic parameter, initially limited to specialised research laboratories, there are now commercial products that are available from your friendly primary care physician that will provide not only office central blood pressure readings, but 24 hour readings as well.

What is the evidence for central blood pressure as a predictor of future cardiac events versus traditional cuff blood pressure. Should central blood pressure be a new target for treatment? Do different therapy affect cuff or central blood pressure differently?

Controversies and Innovation in Emergency Medicine II

S8.1 Challenges in Observation Medicine

Lim Ghee Hian
Emergency Department, Tan Tock Seng Hospital

The practice of Emergency Medicine in Singapore has undergone tremendous changes in the last 20 years. The rising expectations of the public to the level of care delivered coupled with the recurrent of inpatient bed shortages in the hospitals have led to our emergency departments (ED) having to break the mindset of "see, treat and discharge or admit" patients from the ED.

Observation medicine in Singapore was launched in 2005 when the ED in 2 of the restructured hospitals in Singapore moved into this area of care within the ED realm of care.

The ED now has to venture into unfamiliar territories. The challenges encountered in the initial years can be broadly divided into those external and internal to the hospital.

External challenges included the need to convince the regulatory and funding authority that this is indeed a viable option of patient care; and that the emergency physicians are capable of managing patients for up to 24 hours instead of just the short encounter within the ED. We also had to reassure them that it was not a case of "supply driven demand".

Internally, the need to develop management protocols relevant to our patient population throws up big challenges; we needed to convince our hospital colleagues that we are able to provide a good and efficient modality of care. While protocols were available from overseas centres, they were not always applicable to our local context.

Within the ED, buy-in from both the emergency physicians and nurses were of critical importance to bring them on board. This was of the greatest importance as they were the executioner of this initiative.

All these challenges culminated in the outcome measure of whether patients felt this was a good service, whether they felt they had received good, cost effective and safe care.

S8.2 Emergency Ultrasound: How it Changed ED Practice

Toh Hong Chuen
Department of Acute and Emergency Care, Khoo Teck Puat Hospital

Emergency ultrasound began about 2 decades ago with assessment for free intra-peritoneal fluid, and has since experienced an exponential growth. Ultrasound is essentially "seeing with sound", while the practice of emergency medicine is largely guided by the concept of "time". With technological advancement, ultrasound machines become faster, smaller, lighter, making it easier to use by the bedside. Ultrasound gives the emergency physician a new pair of eyes and hands to assess and manage the ED patient in a timely manner: to work out the diagnostic dilemma and to guide therapy and procedures, all done at the bedside. It improves the clinical decision-making process, patient safety and outcomes. It can also enhance resource allocation at the departmental level through prognostication and risk stratification. Emergency ultrasound is now an integral and indispensible armamentarium of the emergency department. It has reshaped and improved the practice of emergency medicine.

S8.3 Acute Non-Invasive Ventilation

Irwani Ibrahim
Emergency Medicine Department, National University Hospital

The delivery of non-invasive ventilation (NIV) has long be regarded as a forte of the intensive care unit as it involves using sophisticated machine which is usually operated by trained staff such as intensivists and respiratory therapists. However, NIV has been shown to be beneficial for patients with acute respiratory failure due to some etiologies. The emergency department in the National University Hospital has established an NIV programme almost decade ago. Along with a literature review, the session will illustrate how the challenges to setting up such a programme were overcome that contributed to its success.

Botulinum Toxin Seminar

S9.1 Workshop on Injection of Botulinum Toxin

Erle CH Lim
Division of Neurology, National University Hospital

Botulinum neurotoxin (BTX), which is produced by the obligate anaerobe Clostridium botulinum, is one of the most lethal toxins known to man. Its lethality reflects its action at the presynaptic terminal, and its capacity to cause flaccid paralysis of all muscles types. In the 1970s, Alan Scott, an ophthalmologist, injected BTX into the rectus muscles of adult rhesus monkeys that had experimental strabismus. By injecting these extraocular muscles with BTX, he was able to alleviate this condition. He reported similar success after injecting BTX into the extraocular muscles of human patients with non-accommodative strabismus—injection of BTX successfully corrected the disorder. Since these pioneering experiments, BTX has been shown to be effective for cosmesis and for the treatment of conditions associated with pain, glandular hypersecretion, and skeletal or smooth muscle overactivity.

In this workshop, 3 physicians will be speaking about and demonstrating, using video vignettes, BTX injection techniques. Erle Lim will start with an introduction about BTX, and outline BTX injection techniques, whilst listing neurologic uses for BTX. Ng Yee Sien will speak on the use of BTX in physical rehabilitation. Tan Bien Keem, a plastic surgeon, will detail the use of BTX for cosmesis.

S9.2 Spasticity and Botulinum Toxin—The Science, Art and Future

Ng Yee Sien[1,2,3]
[1]Department of Rehabilitation Medicine, Singapore General Hospital
[2]Duke-NUS Graduate Medical School
[3]Yong Loo Lin School of Medicine, National University of Singapore

Spasticity is defined as the velocity-dependent resistance to passive motion. Spasticity is a common sequelae in many neurological conditions including stroke, traumatic brain injury, spinal cord injury, multiple sclerosis, motor neuron disease and cerebral palsy. Spasticity may result in pain, difficulties in hygeine and often interfere with sleep and the performance of activities of daily living and gait. There is extensive literature supporting the use of botulinum toxin injections for focal spasticity in the upper motor neuron syndrome. The comprehensive management of spasticity however requires a holistic approach for optimal outcomes involving critical clinical decisions, incorporation of modalities and therapies as well as accurate documentation of outcome measures. We explore a possible approach to the management of this challenging disorder, the incorporation of botulinum toxin injections as well as outline some of the therapeutic advances in this condition.

4th Biennial Update in Ophthalmology—Medicine & the Eye

S11.1 Updates on Diabetic Eye Disease

Adrian HC Koh
Eye and Retina Surgeons

Diabetic retinopathy (DR) is the leading cause of irreversible blindness in developed countries, including Singapore. The main causes of blindness are diabetic macular oedema and proliferative diabetic retinopathy. Many advances in prevention, diagnosis and treatment of diabetic complications have improved visual outcomes and quality of life. These include evidence linking tight glycaemic control, blood pressure management and treatment of dyslipidemia with primary and secondary prevention of DR. In addition, imaging techniques such as optical coherence tomography (OCT) allow instantaneous and reproducible assessment and quantitative measurement of macular thickness, for accurate diagnosis and monitoring of response to therapy. There is still a role for fundus fluorescein angiography, although indications for its use are becoming fewer now.

Laser photocoagulation remains the gold standard of treatment of DR, against which all new therapies have to

be benchmarked against. The well-designed clinical studies, ETDRS (Early Treatment of Diabetic Retinopathy Study) and DRS (Diabetic Retinopathy Study) provide robust evidence of the benefit of laser treatment in preventing visual loss from DR. However, recent data from randomised controlled trials such as REVEAL, RESTORE and from the DRCR (Diabetic Retinopathy Clinical Research) network have resulted in a paradigm shift in management of DME. These studies clearly indicate that anti-vascular endothelial growth factor (VEGF) therapy with ranibizumab (Lucentis) or bevacizumab (Avastin) can give better visual outcomes than laser photocoagulation or intravitreal steroids such as triamcinolone. There are also many other compounds currently being tested that may have a future potential role in treating DR.

S11.2 Ocular Inflammation in Systemic Diseases

Gemmy Cheung
Vitreo-Retinal Service, Singapore National Eye Centre

Many systemic conditions can be associated with ocular manifestations. Ocular inflammation, such as uveitis and scleritis, may even be the presenting sign of systemic diseases. Collaboration between the internist and the ophthalmologist is essential to achieve effective management of these cases. This talk will provide an overview of some of the common ocular inflammatory conditions with systemic associations. The aim of the talk is to provide a practical guide to: (i) what are the ocular signs not to dismiss (ii) when should internists send their patients for an eye examination and (iii) why do ophthalmologists send patients to internists.

S11.3 Eye Problems in the Premature Infant and Child

Pauline YY Cheong
Ophthalmic Consultants Pte Ltd

The eye condition most commonly associated with preterm babies is retinopathy of prematurity (ROP). Retinal changes can be mild with distortion of the fovea to total retinal detachment and no light perception. Late onset retinal detachment and glaucoma have also been reported in children with severe ROP.

In general, by 10 to 12 years of age, up to 50.8% of preterm babies have some ophthalmic morbidity (presence of myopia, strabismus, colour vision or visual field defect) when compared to full term babies (19.5%). Refractive errors are 4 times more common, and strabismus 6 times more common in preterm children than children born full term. Other ophthalmological problems include amblyopia, optic nerve atrophy and cortical visual impairment. The prevalence of these conditions is even higher in children with regressed ROP.

Increasing stage of ROP and lower birth weight is directly correlated to incidence of myopia. Intraventricular haemorrhage (IVH) and severity of ROP is an additional risk factor for strabismus and optic nerve atrophy.

These eye conditions have an impact on the developmental, educational and psychological aspects of ex-premies, and need to be identified for timely intervention.

Premature babies without ROP should therefore be followed-up to 3 years of age to identify treatable conditions like amblyopia, strabismus and refractive errors. Those with severe ROP should be followed-up even more closely initially and subsequently at regular intervals for life.

S11.4 Neuro-ophthalmic Emergencies not to be Missed

Goh Kong Yong
Department of Ophthalmology, Tan Tock Seng Hospital

The lecture will focus on 2 common neuro-ophthalmic emergencies that are may seen in our daily practice: acute diplopia and acute loss of vision.

Common differential diagnoses of acute diplopia such as ocular motor nerve palsies and myasthenia gravis will be discussed. Video case presentations will be used to illustrate them.

Some important causes of acute loss of vision such as compressive optic neuropathy and ischaemic optic neuropathy will be highlighted during the talk. Important skills to assess the optic nerve function-like confrontation visual field examination and examining pupillary light reflexes will be reviewed.

S11.5 HIV and the Eye

Stephen Teoh
Department of Ophthalmology, Tan Tock Seng Hospital

In this age of the AIDS pandemic, patients with HIV are becoming increasingly common. Singapore is no exception despite being a low-risk epidemic nation. We will discuss

the various ocular complications seen in the HIV patient: (i) vasculopathy, (ii) opportunistic infections, (iii) tumours, (iv) neuro-ophthalmic manifesations and (v) complications of treatment. In particular, we will focus on the diagnosis, current and local management of CMV retinitis, the most common opportunistic infection in AIDS patients, as well as on immune-recovery uveitis, the most common cause of vision loss in the post-HAART era.

Thyroid Eye Disease (TED) Workshop

S12.1 Updates on the Medical Treatment for Thyroid Disease

Daniel Wai
Department of Endocrinology, Singapore General Hospital

Thyroid eye disease (TED) occurs in about 50% of all patients with Graves' disease. It results from thyroid-stimulating antibodies binding on to thyrotropin receptors in orbital fibroblasts. This results in increased secretion of hyaluronic acid, causing edema in extraorbital muscles, and some fibroblasts differentiating into adipocytes with expanded intraorbital fat volume. Edema of extraoribtal muscles cause diplopia, and crowding by muscles and fat cause proptosis or even compressive optic neuropathy. Its severity ranges from mild to sight-threatening. Antithyroid drugs and thyroidectomy are not thought to affect the natural history of TED. However, radioactive iodine might worsen TED, especially in smokers. Fortunately, this can be ameliorated by the co-administration of steroids. To prevent deterioration of TED, prompt normalisation of thyroid function, avoidance of hypothyroidism in the course of treatment, smoking cessation and avoidance of trauma are all important. TED is classified according to activity and severity. It remains stable in 65%, spontaneously improves in 20% and deteriorates in 15%. For sight threatening TED, intravenous glucocorticoids with decompression should be offered without delay. For moderate to severe disease, immediate high dose oral steroids for active disease and surgery for inactive disease is recommended. Traditionally, watchful follow-up is recommended for mild TED. However, recently in May 2011, selenium supplementation was shown in a randomised controlled trial to improve the quality of life, slow the progression, and decrease the activity in patients with mild TED. Thus, increased use of selenium may allow us to improve the course of mild TED in future.

S12.2 Surgical Rehabilitation with Orbital Decompression

Yip Chee Chew
Department of Ophthalmology and Visual Sciences, Khoo Teck Puat Hospital

Thyroid eye disease (TED) is a complex, disabling condition involving the eyelid, periorbital soft tissue and orbit. The orbitopathy is characterised by an expanded orbital volume due to many factors including raised glycosaminoglycan, edema, increased orbital fat and enlarged extraocular muscles. This in turn leads to orbital congestion, increased intraorbital (and intraocular) pressure proptosis and optic nerve compression (due to orbital apex crowding). Besides being a cosmetic blemish, severe proptosis causes lagophthalmos and exposure keratopathy with the result risk of infective keratitis and corneal scarring.

Orbital decompression is a useful surgical procedure to create space in the orbit to relieve the increased orbital volume in TED and treat proptosis. It is often the first surgery to be done before other staged surgeries on the extraocular muscles and eyelids. It is indicated functionally for compressive optic neuropathy, exposure keratopathy and severe symptomatic orbital congestion. It is occasionally indicated cosmetically in mild to moderate proptosis to normalise or improve appearance.

Modern surgical advancement enables bony orbital decompression to be performed via hidden or small surgical incisions. The orbital floor can be accessed via a swinging eyelid approach transconjunctivally; while the medial orbital wall can be approached via a transcaruncular incision. The lateral orbital wall can be accessed via a skin crease incision or lateral canthotomy approach. The number of and which orbital walls to be decompressed depends on the severity of proptosis, the training and preference of the orbital surgeon and the status of the paranasal sinuses. Orbital fat decompression, often done together with bone decompression, can be performed alone in selective patients with increased orbital fat volume only.

S12.3 Strabismus Correction for TED

Sonal Farzavandi
Singapore National Eye Centre

Symptomatic diplopia and abnormal head posture (AHP) are bothersome to patients with dysthyroid induced incomitant strabismus. Diplopia can be corrected, giving the patient binocular single vision by using prisms or surgery. Proper

diagnosis and timing of surgery are crucial in achieving a successful surgical outcome.

The use of topical anaesthesia alone for strabismus surgery allows the patient to have desirable results before leaving the operating theatre. The surgeon can adjust the sutures or modify the surgical plan at the time of surgery until the eyes are straight or the patients no longer complain of diplopia.

Topical anaesthesia allows a "One-Stage Method" to correct strabismus and diplopia without the need for patients to return for adjustment.

S12.4 Management of Eyelid Mal-positioning in TED

Shantha Amrith
Department of Ophthalmology, National University Health System

Lid malposition, especially the upper lid retraction, is a common feature of thyroid eye disease. The cause of lid retraction is fibrosis and contracture of musculo-aponeurotic system in the chronic phase.

Lid malposition is managed surgically as the last step in the rehabilitation of the patients with thyroid eye disease as the position of the lid can be affected by proptosis and by squint surgeries on vertical muscles.

Correction of upper lid retraction is carried out by recessing the eyelid retractors namely the Muller's muscle (smooth muscle) and the levator palpebrae superioris. This recession is done at the upper border of the tarsal plate through a skin incision or through a conjunctival incision. The recessed muscle needs to be fixated in position either with hang-back sutures or by keeping the lid stretched with a traction suture at the lid margin for a week. Alternatively, one can place a spacer to keep the levator aponeurosis in a recessed position for more predictable results. The spacers used are cadaveric sclera, acellular dermis or autologous tissue such as hard palate graft.

The lower eyelid retraction is corrected by recessing the lower eyelid retractors. As gravity affects the lower lid stability, a spacer is always necessary for the lower lid and the ideal spacer is the hard palate graft.

In addition to cosmetic improvement, lid closure (lagophthalmos) always gets better in all cases after the surgery and that relieves the symptoms of dry eye and tearing for the patients.

SMCM Oral Paper Presentation

O1 Pre-admission Patient Visits (PAPV) by Ang Mo Kio-Thye Hua Kwan Hospital—A Restructured-Community Hospital Innovation to Provide Integrated and Holistic Care

Kenny Tan[1]
[1]**Thye Hua Kwan Hospital**

Introduction: This study aims to manage and improve patient understanding and expectations on the role of community hospitals (CH) prior to admission; to identify medical and non-medical issues that might not have been surfaced in the referral process; and to involve trans-disciplinary assessment and discussion by CH team prior to admission.

Methods: Patients who had been referred, accepted and awaiting transfer from 2 restructured hospitals (RH) were identified by the CH Admissions Unit, and visited by the CH staff prior to transfer. Brochures were handed to and interviews were conducted with the patients and caregivers.

Results: In the period between March 2010 and May 2011, a total of 334 patients were visited while at the RH, out of which 235 (70.4%) were eventually admitted. Reasons for non admissions included discharged home (n = 47), unfit for transfer (n = 4), required further treatment at RH (n = 20), reviewed other options (n = 19), death (n = 4), pending bed availability (n = 5). Sixty-seven out of 334 (20.1%) patients had issues which were not raised or identified in the initial referral from the RH. These included social (n = 24), medical (n = 19), nursing (n = 11), financial (n = 11) and dietetic (n = 2) issues which were assessed and discussed by the relevant clinical and para-clinical CH teams before admission.

Conclusion: PAPV was useful in managing patient expectations prior to admission, and allowed the CH to pick up 20% of patients with issues that were not surfaced in the referral process from the RH. This additional information allowed and enabled the CH trans-disciplinary team to better prepare for the patients' admission. Extending these visits to the other RH is likely to yield similar benefits for greater integrated and holistic care for patients.

O2 Has the Non-neurotised TRAM Flap been Sensationalised? A NUH Experience

Raymond HG Lim[1]
[1]National University Hospital

Introduction: The TRAM flap is one of the preferred methods of autogenous breast reconstruction postmastectomy. It offers the patient a relatively reliable, safe and aesthetically pleasing form of reconstruction. This study looks retrospectively at the spontaneous return of sensation in patients after non-innervated TRAM flap reconstruction.

Methods: Sixteen patients who had previously undergone non-innervated TRAM flap reconstruction over a period of 9 to 94 months were recalled and examined.

Breast sensation was objectively quantified using a Semmes-Weinstein monofilament aesthesiometer. Breast sensation was measured in grams over the nipple, areola, and surrounding skin, for both breasts, at similar locations. Data gathered for these patients were interpreted using repeated measures ANOVA. The results yielded 2 significant findings.

Results: We find that the non-operated breast is significantly more sensitive than the breast after non-innervated TRAM reconstruction (P <0.01).

Secondly, there is significant interaction between sensitivity of the breast post-TRAM reconstruction and duration. For the operated breast, it becomes more sensitive over time, compared to the non-operated breast, which remain just as sensitive over time (P <0.01).

Conclusion: Results showed that the breast post-TRAM reconstruction is indeed less sensitive compared to the non-operated breast. Sensation over the non-innervated TRAM flap also does indeed improve over time.

O3 A 10-year Profile (2001 to 2010) of Trauma Admissions Caused by Interpersonal Violence: A Major Trauma Centre's Experience

Cheong Kai Xiong[1], **Lo Hong Yee**[2], **Teo Li Tserng**[2], **Crystal A Raphael**[3], **Karen TS Go**[3], **Chiu Ming Terk**[2]
[1]Yong Loo Lin School of Medicine, National University of Singapore
[2]Trauma Service, Department of General Surgery, Tan Tock Seng Hospital
[3]Trauma Service, Tan Tock Seng Hospital

Introduction: This study aims to characterise trauma admissions caused by interpersonal violence.

Methods: This is a retrospective study of patients who

were presented to the Tan Tock Seng Hospital Emergency Department during the 10-year period from 1 January 2001 to 31 December 2010 for injuries caused by interpersonal violence. Data were obtained from the Trauma Registry, case notes and electronic records for descriptive analysis.

Results: Four hundred and forty-four patients were admitted in total (99.1% males, 9.9% females). Average age was 36.6 years (range, 14 to 83). Though Chinese (53.4%) was the most common ethnic group, Indians (20.7%), Malays (17.1%) and Others (8.78%) experienced a disproportionately higher burden of interpersonal violence. Of the patients, 77.3% were Singaporeans. There was an increase from 10 to 96 cases annually in the first 8 years, followed by a decrease in the last 2 years (55 in 2010). Time of injury was predominantly from 0000 to 0559 (72.3%). Injury type was mainly blunt (58.3%). Mechanism was mostly sharp/blunt instruments (78.6%). Females more commonly experienced interpersonal violence at home, and males at public places. Interpersonal violence most commonly occurred in public sites (88.7%). Average GCS was 13.5 (range, 3 to 15) and 73 (16.4%) had moderate/severe brain injury. Average ISS was 13.5 (range, 1 to 75) and 155 (34.9%) were major trauma cases. There were 6 deaths (ISS of ≥26) which were mostly associated with penetrating trauma (83.3%) and public sites (83.3%).

Conclusion: A better understanding of the epidemiology, injury characteristics and outcomes of interpersonal violence was achieved. It is hoped that these data will prompt further research, leading to formulation of preventive strategies.

O4 A Simple Risk Scoring Model for Prediction of Contrast Induced Nephropathy in Patients with Pre-existing Renal Impairment Undergoing Non-emergency Percutaneous Coronary Intervention

Eric Chong[1]
[1]Jurong Health Services

Introduction: Baseline renal impairment is the most recognised risk factor for developing contrast nephropathy (CIN) postpercutaneous coronary intervention (PCI). We examine additional risk factors in this high-risk group and aim to develop a risk model for prediction of CIN.

Methods: A cohort of 770 consecutive patients with existing impaired renal function (estimated glomerular filtration rate (eGFR) <60ml/min/1.73m^2) who received routine prophylactic saline hydration and oral N-acetylcysteine treatment while undergoing PCI between May 2005 and October 2008 in our centre were enrolled. The study endpoint, CIN, is defined as >25% increase from baseline creatinine within 48 hours post PCI.

Results: Despite routine prophylaxis, CIN occurred in 11.4% of the patients. Our study showed that important clinical predictors for CIN were age (OR 1.59, 95% CI, 1.0 to 2.52, $P = 0.049$), anaemia with haemoglobin <11mg/dl (OR 2.26, 95% CI, 1.41 to 3.61, $P = 0.001$), post procedure creatinine kinase rise (OR 1.12, 95% CI, 1.07 to1.16 for every 500 u/l increase, $P < 0.001$), systolic hypotension with blood pressure <100mmHg (OR 2.53, 95% CI, 1.16 to 5.52, $P = 0.016$), and higher contrast volume. The incidence of CIN was significantly higher in patients with more severe renal failure (6.3%, 17.4% and 40.8% when eGFR was in the range of 40 to 60, 20 to 40 and <20 respectively, $P < 0.001$). A prediction model was developed based on the findings. The incidence of CIN could vary between 2% and >50% depending on these additional risk profiles.

Conclusion: Patients with impaired renal function undergoing PCI are at high risk of developing CIN despite traditional prophylaxis. A model of risk prediction could be used to predict its occurrence.

O5 Progression from Newly Diagnosed Impaired Fasting Glucose to Type 2 Diabetes Mellitus in Singapore

Gary Ang[1], **Christine X Wu**[1], **Matthias PHS Toh**[1], **Chia Kee Seng**[2], **Heng Bee Hoon**[1]
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[2]Department of Epidemiology and Public Health, National University of Singapore, Republic of Singapore

Introduction: We sought to estimate the rate of progression from newly diagnosed impaired fasting glycaemia (IFG) to Type 2 Diabetes Mellitus (DM) in Singapore and to identify possible factors that are associated with the progression to Type 2 DM.

Methods: Data from the National Healthcare Group Diabetes Registry were used to identify subjects with newly diagnosed IFG in 2006 and 2007. Subjects included had fasting glucose level more than 6.0 mmol/L and less than 7.0 mmol/L in the year of diagnosis (2006 or 2007) and fasting glucose level less than 6.1 mmol/L in the year before (2005 or 2006). Univariate Survival Analysis followed by Multivariate Survival Analysis was performed and interactions were tested in the final model.

Results: Nine hundred and eighty-two men and women aged 25.8 to 96.6 years were included in the study. During a mean

follow up of 1.63 (± 1.22) years, 175 participants developed Type 2 DM. The annual progression rate was estimated to be 6.9 %. The factors associated with the development of Type 2 DM were higher fasting plasma glucose level (mmol/L) in the year of diagnosis of IFG (HR, 8.91, 95% CI, 4.80 to 16.6), female gender (HR, 1.60, 95% CI, 1.17 to 2.19), age less than 60 years (HR, 1.55, 95% CI, 1.15 to 2.09), and High Density Lipoprotein cholesterol (mmol/L) (HR, 0.43, 95% CI, 0.27 to 0.68)

Conclusion: The progression rate to Type 2 DM is high in subjects with newly diagnosed IFG. Intensive lifestyle modification can be incorporated into their current yearly follow-up to prevent the progression to Type 2 DM which is a growing problem in Singapore.

O6 Video-based Imaging Technology: A Novel Method for Diabetic Retinopathy Screening

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[3]Australian E-Health Research Center/Commonwealth Scientific Industrial and Research Organization, Perth, Australia

Introduction: This study aims to evaluate the efficacy of a new imaging technique using retinal video recording for diabetic retinopathy screening.

Methods: A total of 200 eyes (100 participants) were captured using retinal digital videos (OIS EyeScan) and standard retinal still photography (Zeiss FF 450 plus), followed by slit lamp examination by a senior consultant ophthalmologist. Kappa statistics, sensitivity and specificity for all the diabetic retinopathy signs and grades were calculated with reference to slit lamp examination as reference standard.

Results: The mean age (± standard deviation) of participants was 52.8 ± 15.1 years, duration of diabetes was 13.7 ± 9.7 years and mean HbA1c was 8.0 ± 1.7%. The sensitivity and specificity of video recording for detecting the presence of any diabetic retinopathy were 93.8% and 99.2%, respectively (ophthalmologist 1) and 93.3% and 95.2%, respectively (ophthalmologist 2), with reference to slit lamp examination. In contrast, the sensitivity and specificity of retinal photography was 91.8% and 98.4%, respectively (ophthalmologist 1) and 92.1% and 96.8%, respectively (ophthalmologist 2) for detection of any diabetic retinopathy. Technical failure rate for retinal video recording and retinal photography were 7.0% and 5.5% respectively.

Conclusion: Retinal video recording is a novel and effective diabetic retinopathy screening technique which is quick and easy to perform with minimal training for both experienced and inexperienced ophthalmic photographers. By making it easier to screen and monitor diabetic retinopathy in the community, particularly in remote areas and developing countries, this potentially sight-threatening condition may be diagnosed earlier and treated appropriately.

O7 Do Metabolic Changes Affect the Hippocampus in SLE?

Chan Ling Ling[1], Wan CM[1], Rumpel H[1], Ng KM[1], Tze CKY[2], Thumboo J[2], Fong KY[2]
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Introduction: Various neuropsychiatric disorders have been studied using multivoxel H1 MR spectroscopy (CSI). Using multivoxel H1 MR spectroscopy, we evaluated for metabolic changes in the hippocampus in patients with systemic lupus erythematosus (SLE).

Methods: Stable lupus patients and normal controls underwent MR structural and multivoxel H1 MR spectroscopic (CSI) imaging on a 1.5T scanner. The CSI volume of interest was centred on and tilted parallel to the hippocampal anteroposterior plane. Absolute N-acetylaspartate (NAA), choline and creatine concentrations were obtained from voxels centred over the hippocampus using the LC Model, and the metabolic ratios compared.

Results: In both 28 patients and 47 controls (mean age 40 years, 88% female), an increasing NAA/cho ratio is observed in the anteroposterior direction along the longitudinal axis of the hippocampus. Comparing patients to controls, there is a lower NAA/cho ratios in the hippocampal voxels in patients than in controls and these were statistically significant at $P < 0.05$.

Conclusion: Metabolic changes are observed in the hippocampus in stable lupus patients compared to controls.

O8 Propective Randomised Controlled Trial Comparing Drug Eluting Stent (DES) versus Percutaneous Transluminal Angioplasty (PTA) for the Treatment of Haemodialysis Arterio-Venous Graft (AVG) stenoses—A Preliminary Report

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Introduction: This paper aims to compare the effectiveness and safety of the Zilver PTX Drug Eluting Stent (DES) versus conventional percutaneous transluminal angioplasty (PTA) in maintaining patency of the venous graft anastomotic stenosis in patients with dysfunctional haemodialysis arterio-venous graft (AVG).

Methods: From March 2009 to September 2010, 32 patients (23 females, 9 males) with mean age of 58.5years (range, 33 to 79 years) who were agreeable and met the inclusion criteria were enrolled. Patients with central venous stenoses were excluded. Fifteen patients were randomised to receive a DES while 17 patients were randomised to conventional PTA of their graft venous anastomotic stenosis. In the PTA arm, either a normal balloon or high pressure balloon was used. In the DES arm, the Zilver PTX Drug eluting stent was deployed across the stenosis following PTA and post dilated if required. All patients who received a DES were put on dual antiplatelet therapy. Mean follow-up period was 10.2 months (range, 1.8 to 17.8 months).

Results: The PTA and DES placement were successfully performed in all patients. There were no significant procedure related complications or mortality. Mean primary patency for the DES and PTA groups were 163.4 days (range, 15 to 376 days) and 103.9 days (range, 7 to 246 days) respectively ($P = 0.157$, NS). In the DES cohort, 3 stents were placed across the elbow region, of which 2 occluded within 3 months. There were no stent fractures. In the PTA group, the patency of the AVG did not depend upon the position of the graft venous anastomosis. There were no bleeding complications from the dual antiplatelet therapy.

Conclusion: Our preliminary experience suggests placement of DES at the graft venous anastomotic stenosis did not achieve a statistically significant higher primary patency rate compared to PTA.

O9 NAT2 Genotypes Modulate Caffeine-Mediated Risk in Parkinson's Disease: A Clinical and Cellular Study

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Introduction: Caffeine intake is associated with a reduced risk for Parkinson's disease (PD). We aim to assess if specific genes implicated in PD (i.e. NAT2) play a role in modulating the protective effect conferred by caffeine in an ethnic Chinese population.

Methods: A total of 300 PD and controls of Chinese ethnicity were recruited and genotyped for NAT2 using allelic discrimination probes for the most prevalent single nucleotide polymorphic variants (alleles NAT2*5, NAT2*6, NAT2*7) associated with slow acetylation. Individuals with absence of any of the 3 mutations were classified as fast acetylators. Caffeine intake was assessed by clinical interview and scored into caffeine-years by multiplying the average amount of caffeine taken per day with the total number of years of consumption.

Results: The genotype of NAT2 appears to interact with lifetime caffeine intake to reduce the risk of PD. High caffeine consumption vs low caffeine consumption showed an odds ratio of 0.510, (95% CI, 0.174 to 1.498) in fast acetylators (approximately 29.5% relative risk reduction for high vs low caffeine consumption); while high caffeine consumption vs low caffeine consumption show an odds ratio of 0.381, (95% CI, 0.2178 to 0.668) in slow acetylators (approximately 39.1% relative risk reduction for high vs low caffeine consumption).

Conclusion: Our initial observations suggest that slow acetylators may augment the degree of protection conferred by caffeine on PD in an ethnic Chinese population. Further experiments are needed to clarify the exact neuroprotective mechanism of caffeine.

College of Surgeons, Singapore – Young Surgeon's Award

O10 High Endothelial Venules: A Novel Prognostic Marker in Cancer Metastasis and the Missing Link?

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Introduction: Squamous cell carcinoma (SCC) of the tongue is one of the most prevalent tumours of the head and neck region. The extent of lymph nodes (LN) metastasis is a major determinant for the staging and the most reliable adverse prognostic factor. Primary tumours can induce lymphatics and vasculature reorganisations within sentinel LN before the arrival of cancer cells and these key blood vessels are identified as HEV. The morphological alteration of HEV in the presence of cancer, coupled with the increased proliferation rate of the endothelial cells, results in a functional shift of HEV from immune response mediator to blood flow carrier.

Aims: To evaluate tumour-induced vascularisation in regional LN of cancer patients by studying the morphological and functional alterations of high endothelial venules (HEV) and its correlation to clinico-pathological features.

Methods: This multi-centre study is based on 65 consecutive patients with tongue SCC who underwent primary surgical treatment from 2001 to 2005. The patients were categorised into 2 groups based on the presence of malignancy in their cervical lymph nodes. A review of the patients' pathological and clinical data was performed from a prospective database. Immunohistochemical staining of the tissue blocks for HEV and high-power field image analysis were performed and analysed with correlation to the patients' clinico-pathological features.

Results: The total number of HEV is significantly associated to disease-free interval when controlling for the group (P = 0.022) as well as combining both groups as one cohort (P = 0.023). There also a similar association comparing the HEV parameters to overall survival.

Conclusion: Our results suggest that the HEV possibly plays a key role in the pathogenesis of lymphatic and subsequent distant metastases and provide the missing link in cancer metastasis. Confirmation of this hypothesis would offer a novel therapeutic approach to preventing metastasis by blocking the remodeling processes of HEV in LN.

O11 Craniofacial Resections: An Evolution over 50 Years

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Introduction: Craniofacial resection is the surgical standard of care in dealing with anterior skull base tumours. It was first described 5 decades ago and since then, advances have been made in terms of the improvement in neuroimaging technology, operative techniques, perioperative care and adjuvant treatment. There have been various publications in the literature describing craniofacial resections from overseas centers but no local data have been published. We wish to compare our local data with overseas centres and highlight the interesting differences that may influence our management.

Methods: A retrospective review of all patients who underwent a craniofacial resection for an anterior skull base tumour was conducted from January 2000 to January 2010. A standard surgical technique was used by the same team of surgeons. Postoperative complication was classified into systemic, wound, central nervous system and orbit. Statistical analyses were carried out to determine factors that predicted mortality or complications.

Results: Out of a total of 48 patients, the majority of our patients had esthesioneuroblastomas (50%). Postoperative mortality occurred in 1 patient (2%). Postoperative complication rate occurred in 40% of patients. Orbital complication occurred in 9 patients (19%). Wound complications occurred in 6 patients (13%). Central nervous system complication occurred in 5 patients (10%) and systemic complication in 2 patients (4%).

Conclusion: Majority of our Asian patients had esthesioneuroblastomas and this was significantly higher than the incidence quoted in other centres. Craniofacial resection is a safe operation with a low mortality but has significant complication rate. All the complications had no long lasting sequelae.

SMCM Poster Paper Presentation

P1 Computer-Assisted Navigational Surgery to Improve Outcomes in Orbital Reconstructive Surgery

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Introduction: This study aims to evaluate the efficacy of an intraoperative navigation device in improving outcomes after orbital fracture reconstructive surgery.

Methods: A prospective matched control trial was conducted at NUH from 2004 to 2009. Fifty-eight orbital trauma patients who underwent surgery were included. Twenty-nine consecutive patients received the aid of Kolibri®. A control group of 29 were without the device. Both groups were matched for age, sex, location of orbital wall fracture, preoperative ophthalmological features, etiology, severity of trauma, surgical approach and types of implant used. Postoperative follow-up took place at 1, 3, 6 and 12 months.

Postoperative complications—diplopia (Dp), infra-orbital hypoesthesia (IOH), ophthalmoplegia (Op), enophthalmos (En) were compared between groups.

Results: Fewer patients with postoperative complications in study group (n = 29) compared to the controls (n = 29).

Dp: 7/29 (24%) vs 17/29 (59%), 4/29 (14%) vs 16/29 (55%), 4/29 (14%) vs 13/29 (45%), 2/29 (7%) vs 10/29 (34%).

IOH: 5/29 (17%) vs 13/29 (45%), 4/29 (14%) vs 11/29 (38%), 1/29 (3%) vs 7/29 (24%), 0/29 (0%) vs 4/29 (14%).

Op: 4/29 (14%) vs 5/29 (17%), 3/29 (10%) vs 2/29 (7%), 2/29 (7%) vs 1/29 (3%), 1/29 (3%) vs 1/29 (3%) at 1, 3, 6 and 12 months, respectively.

En at 12 months was 1/29 (3%) vs 3/29 (10%).

Conclusion: Navigation minimises postoperative complications and reduces the need for repeat procedures, improves preoperative planning and provides real-time intraoperative guidance.

P2 Pattern of Poisoning Cases Reported at a Tertiary Health Care Centre in India

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Introduction: Poisoning is an important health hazard and is one of the leading causes of morbidity and mortality worldwide.

Aim: This study aims to gather the epidemiological information regarding poisoning cases such as the incidence, age, gender, religion, type of poisoning, circumstance of poisoning and outcome.

Methods: A 3-year retrospective research from January 2006 to December 2008 was conducted at the Kasturba Hospital, Manipal, India.

Results: Of the total 149,454 patients admitted in the hospital for treatment during this 3-year research period, 592 patients were admitted for acute poisoning. This was less than 1% of all admissions. Of these, 57% were males and 43% females. The majority (30%) cases were from the age group of 21 to 30 years. Most (63.7%) poisonings were suicidal and only 35.8% were accidental in nature. The mortality outcome was 66 out of 592 cases.

Conclusion: This study emphasises the need to give priority in prevention and early treatment of poisoning in the health care system of the Indian population.

P3 An Analysis of 243 Orbitozygomatic Fractures in Singapore

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Introduction: This study aims to evaluate aetiological and epidemiological characteristics of orbitozygomatic complex fractures over a 2-year period.

Methods: A retrospective, descriptive comparative study was used to evaluate 243 patients who presented at NUH with orbitozygomatic fractures from 2009 to 2010. Age of patients ranged from 7 to 72 years (mean = 32.5). Data regarding age, sex, race, cause of injury, site of orbital fracture and postinjury complications included diplopia, enophthalmos,

infraorbital nerve hypesthesia and ophthalmoplegia.

Results: Male to female ratio was 8.89 : 1.11. Fifty-one percent were Chinese, 17.7% Indians and 17.7% Malays. The age group, 20 to 30 years, accounted for 42.6%. 29.2% of fractures resulted from motorcycle accidents, 16.9% from road accidents involving cars and trucks, and 13.2% from assault. 58.0% were in orbital floor, 29.2% in orbital rim, 26.7% in medial wall, 26.3% in lateral wall, and 11.1% in orbital roof. Most orbital rim injuries were confined to the inferior orbital rim. Post injury, 10.7% had diplopia, 7.8% had enophthalmos, 12.8% had infraorbital nerve hypesthesia and 4.9% had ophthalmoplegia. Postoperatively at 12 months, 1.6% had diplopia, 0.82% had enophthalmos, 2.1% had infraorbital nerve hypesthesia and 0% had ophthalmoplegia.

Conclusion: Young Chinese male motorcyclists are at highest risk of orbito-zygomatic fractures. Orbital floor fractures are most common and orbital roof are least common. Infraorbital nerve hypesthesia is the commonest complication post injury, and at 12 months postoperatively.

This study provides information about present demographic trends on orbital fractures to identify the most vulnerable population.

P4 Attitudes towards Mental Illness amongst Medical Undergraduates

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Introduction: Studies have shown that negative attitudes towards people with mental illness are widespread (Crisp et al 2000). A study in an Asian setting found there is some stigma towards mentally ill patients even amongst healthcare professionals (Chow et al 2007). There are few studies that deal with attitudes amongst healthcare professionals in training, a crucial point in professional development when these attitudes can be addressed.

Methods: This study involved third-year medical students. It was approved by NHG's DSRB research ethics board; participation was voluntary. The Attitude to Mental Illness Questionnaire, a 20-item, Likert-type self-rated scale was used at the start and end of the psychiatry rotation.

Statistical analysis was done using SPSS version 16. Differences between baseline and last day of rotation were tested by Paired t-test and Wilcoxon signed-rank test.

Results: There were 146 respondents (45.9% males); 94.5% were in the 21 to 25 age group. Respondents showed significant improvement in the AMI score 64.4 vs 66.8, mean diff –2.4, p< 0.001. There was significant differences across time between male and female groups (time and group effect) in the AMI score ($P = 0.02$).

Conclusion: These findings are encouraging and provide a positive baseline from which to enhance efforts to destigmatise mental illness. Positive attitudes towards mental illness at this early stage amongst medical students can only reflect eventual better quality of care, care seeking behaviour and outcomes for patients when these students start their professional careers.

P5 A Protocol to Reduce Inter-reviewer Variability in Computed Tomography Measurement of Orbital Floor Fractures

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Introduction: This study aims to evaluate the inter-reviewer variability of a novel protocol for orbital floor fracture (OrbFF) measurements on Computed Tomography (CT) scans.

Methods: This protocol for CT measurement of OrbFF was designed to reduce inter-reviewer variability. Unique aspects of this protocol include:

1. Defining abrupt changes in (i) bone density, (ii) interuption of cortical bone continuity and (iii) abrupt changes in bone thickness as fracture limits.
2. Measurement of fracture size from the superior aspects of fracture limits.
3. Measuring the fracture size on all predefined CT frames to obtain the largest reading.

Five independent reviewers without clinical experience in orbital fracture measurements measured orbital floor fractures of consecutive patients following the protocol.

Results: The mean readings, of OrbFF width, measured by the 5 independent reviewers on coronal views of CT scans were 27.67 (±0.38) mm, 27.02 (±0.35) mm and 25.02 (±1.08) mm for patients A, B and C, respectively.

The mean readings of OrbFF depth measured on sagittal views were 27.12 (±1.31) mm, 37.24 (±1.13) mm and 36.32 (±0.94) mm for patients A, B and C, respectively.

Conclusion: This pilot study shows:

1. For measurements performed with this novel protocol, interobserver variability was minimal (similar to margin of error in mesh trimming ~ 1 mm).
2. This protocol is effective, easy to teach and effected reproducible results in all observers.

P6 Polycaprolactone Implant in the Reconstruction of Orbital Wall Fractures

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Introduction: This study aims to evaluate safety and efficacy of Osteopore in orbital reconstructive surgery.

Methods: Forty-eight orbital trauma patients presenting at NUHS from 2009 to 2010 were included. All underwent surgery at DPRAS. Orbital fractures of 24 consecutive patients were repaired with Osteopore. Twenty-four patients (control) underwent titanium implant reconstruction.

Results: 1st month: Fewer patients with diplopia [2/24 (8%) vs 6/24 (25%)] and infra-orbital hypoesthesia [2/24 (8%) vs 4/24 (17%)] in the study group compared to controls. Number of ophthalmoplegia was similar in both groups [1/24 (4%) vs 1/24 (4%)].

3rd month: Fewer patients with diplopia [1/24 (4%) vs 4/24 (17%)], infra-orbital hypoesthesia [2/24 (8%) vs 3/24 (13%)] and ophthalmoplegia [0/24 (0%) vs 1/24 (4%)] in study-group compared to controls.

6th month: Fewer patients with diplopia [0/24 (0%) vs 3/24 (13%)], infra-orbital hypoesthesia [1/24 (4%) vs 2/24 (8%)] and ophthalmoplegia [0/24 (0%) vs 1/24 (4%)] in the study group compared to controls.

12th month: Fewer patients with diplopia [0/24 (0%) vs 1/24 (4%)] and infra-orbital hypoesthesia [1/24 (4%) vs 2/24 (8%)] in study-group compared to controls. No ophthalmoplegia in both groups.

Throughout the 12-month period: Fewer patients with enophthalmos [0/24 (0%) vs 1/24 (4%)] and infection [2/24 (8%) vs 4/24 (16%)] in study-group compared to controls.

Conclusion: Osteopore is comparable to titanium. It is non-inflammatory, non-allergenic, sufficiently rigid. It promotes vascular ingrowth and is osteoconductive.

P7 Microsoft Excel® & Visual Basic for Applications (VBA) to Improve Data Acquisition in Clinical Research

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Introduction: This study aims to compare utility of automated data collection using Microsoft Excel® and Visual Basic for Applications (VBA) against conventional paper-based data collection.

Methods: Customised menu-driven electronic interface with data fields identical to the hardcopy datasheet was generated with Excel® and VBA, applied to a 12-month study evaluating post-reconstruction breast sensitivity as a proof of concept. Its versatility, accuracy, efficiency, user-friendliness, costs, security, set-up time, requisite programming knowledge and reliance on technical support were compared.

Results: Prototype database is password-protected. Data is saved according to identification card numbers and allows retrieval. Previously added data is non-modifiable (unless unlocked) to prevent accidental modifications when new data is added. Data fields are resettable. Extrapolating from our experience with the prototype, advantages of using Excel® and VBA in data acquisition include:

1. Versatility: VBA can be manipulated to add functions as required by any study design in addition to pre-existing Excel® data processing capabilities.
2. Eliminates interim hardcopy data collection before transferring to computer; reduces error, time and environmental waste.
3. Minimal end-user training required.
4. Free; no need for expensive proprietary solutions.
5. Secure.
6. Database transferability to Internet, open-source and mobile platforms, eliminating geographical and time

limits.

Concerns:

1. Programming knowledge and technical support required.
2. Static VBA code may not work with newer Excel® versions.
3. Potential for data loss if computer shuts down suddenly.

Conclusion: Compared to conventional hardcopy data collection, Microsoft Excel® and VBA are more powerful platforms for data acquisition.

P8 The DIEP and Pedicled TRAM in Breast Reconstruction: Morbidity and Cost Issues

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Introduction: In our rising health costs, it is perhaps pertinent to compare the complication rates as well monetary costs incurred between these 2 popular options of reconstruction.

Aim: The objective was to compare the complication rates and costs of each of the 2 operations in one of our public hospitals.

Methods: The records of women who underwent immediate reconstruction with either TRAM flaps (2003 to 2006) or DIEP flaps (1999 to 2006) by a single surgeon were reviewed. Only patients with unilateral mastectomy immediate reconstruction were considered, with the exclusion of patients with bilateral mastectomy, delayed reconstruction, bilateral breast reconstruction and nipple reconstruction, to ensure that flap choice was the only variable. Forty patients with TRAM reconstruction and 40 patients with DIEP reconstruction were accrued.

Results: Complications arising from pedicled TRAM include flap failure (2.5%), fat necrosis (15%), Abdominal hernia requiring repair (2.5%) and minor complications (27.5%); complications arising from DIEP include total flap loss (4%), partial flap loss (4%), fat necrosis (4%) and minor complications (16%). The mean hospital stay was 8.2 days (range, 3 to 18) for TRAM reconstruction and 7.7 (range, 5 to 12) for DIEP reconstruction. In our hospital, DIEP reconstruction shows a higher average total cost, costing $2820 more than TRAM reconstruction (DIEP: $11072.06 compared to TRAM: $8252.05).

Conclusion: In our experience, pedicled TRAM reconstruction costs less and has lower complication rates. The pedicled TRAM reconstruction remained a highly reliable reconstruction despite better aesthetic outcome and less donor site morbidity of the DIEP reconstruction.

P9 Sleep Disorders in Parkinson's Disease—A Clinical and Polysomnographic Case Control Study

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Introduction: Non-motor symptoms (NMS) are common in Parkinson's disease (PD) and significantly affect health-related quality of life in PD patients. However, large-scale studies quantifying the burden of NMS in PD patients compared to controls are lacking. We compare the NMS burden between PD patients and healthy controls in an Asian population.

Methods: A total of 314 subjects were recruited from a tertiary hospital in Singapore (173 PD patients and 141 controls). NMS experienced by subjects were assessed using the Non-Motor Symptoms Scale (NMSS). PD patients were also assessed with the motor component of the Unified Parkinson's Disease Rating Scale (mUPDRS), modified Hoehn and Yahr (H&Y) staging scale, Hamilton Rating Scale for Depression (HAM-D) and Parkinson's Disease Questionnaire (PDQ-39).

Results: PD patients had a higher average total NMSS score (37.9±34.0) than controls (11.2±14.9) (P <0.001). PD patients experienced greater NMS burden than controls in all domains except the sexual function domain (P <0.001 for all comparisons that showed a significant difference). Using stepwise logistic regression, the NMSS individual item scores for the symptoms of fatigue, restless legs, drooling saliva, difficulty swallowing, constipation, nocturia and a change in taste or smell were selected to form a model that discriminated between PD patients and controls (area under the ROC curve: 0.85).

Conclusion: PD patients reported greater severity and frequency of NMS symptoms than controls. Identification and assessment of relevant NMS should form part of the clinical management of PD patients.

P10 A Case Control Study on Non-motor Symptoms in Parkinson's Disease

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Introduction: Sleep disturbances commonly affect patients with Parkinson's Disease (PD), but few quantitative case control studies describing their occurrence in Asian populations exist. We investigated the prevalence and severity of sleep disorders in PD patients in an Asian population.

Methods: One hundred and twenty-four subjects were recruited from a tertiary hospital in Singapore (56 PD patients and 68 controls). They were assessed with the Insomnia Severity Index (ISI), Epworth Sleepiness Scale (ESS), overnight polysomnography (PSG) and Multiple Sleep Latency Test.

Results: PD patients had higher mean ISI (P <0.001) and ESS (P <0.001) scores than controls. In PD patients, ESS and ISI scores were associated with depressive symptoms (P = 0.001 and P = 0.011, respectively). On overnight PSG, total sleep time (TST) (P = 0.010), sleep efficiency (P = 0.001), and percentage of sleep in REM stage (P <0.001) were reduced in PD patients. In PD patients, older age (P = 0.001) and higher levodopa daily dose (P = 0.030) were associated with reduced TST. Prevalence of primary nocturnal sleep disorders and pathological sleepiness was not increased in PD patients compared to controls.

Conclusion: PD patients reported more insomnia and excessive daytime sleepiness than controls. On PSG, they experienced reduced TST, sleep efficiency and REM stage percentage. Sleep dysfunction in PD is complex and not explained by an increased prevalence of primary sleep disorders on PSG. A high index of suspicion for at-risk patients should form part of the clinical management of PD.

P11 Case of Rapidly Progressive Young Onset Dementia

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Introduction: Cognitive impairment is a common complaint in an aging society and should be differentiated clinically into chronic and rapid progressive categories. This case of Creutzfeldt–Jakob disease (CJD) illustrates the typical clinical features, imaging and EEG changes of a rare cause of rapidly progressive dementia.

Methods: Presenting a case of young onset dementia to illustrate the above objective.

Results and Conclusion: A 65-year-old Chinese gentleman presented with rapid onset of cognitive impairment over a 2-month period, losing his job of a cashier as a result. This condition had rapidly worsened over the few months and he became bed bound 5 months after disease onset. Neurological examination showed impairment of multiple cognitive domains, including attention, executive, visual-spatial functions, as well as visual and verbal memory. Montreal Cognitive Assessment (MoCA) score of 5/30 was documented after 4 months of symptom onset. There were cortical signs, including agnosia and apraxia. MRI brain showed the described cortical ribboning gray matter of the supratentorial cerebrum bilaterally (Fig. 1). EEG showed periodic discharges indicating cortical abnormalities of both hemispheres (Fig. 2). Lumbar puncture confirmed the presence of 14-3-3 protein. Diagnosis of probable sporadic Creutzfeldt-Jakob disease (CJD) was made and patient was transferred to a hospice facility for palliative care.

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P12 A 5-year Comparison of Ahmed and Baerveldt Drainage Implants on IOP Fluctuation and Visual Field Progression in an Asian Population

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Introduction: This study aims to investigate the long-term effects of Ahmed or Baerveldt glaucoma implants on intra-ocular pressure fluctuation and visual field progression in Asian patients.

Methods: This is a retrospective, non-randomised case series study.

Ninety-eight eyes of 67 patients who had received Ahmed S2 Glaucoma valved implant or Baerveldt 350-mm^2 implant at the Singapore National Eye Centre from 2000 to 2005 were followed up for 5 years.

Outcome measures:

1. IOP fluctuation defined by the standard deviation of IOP at all post-intervention visits until the following time intervals: 1 month, 3 months, 1 year, 5 years. Mean IOP was also recorded at the above time-points.
2. Visual field progression was measured using the AGIS VF score. Decrease of visual field (DVF) is defined as either an increase in the AGIS VF score of ≥4 from baseline, or a score of ≥19.

Results: We studied a total of 38 eyes with Ahmed implants and 60 eyes with Baerveldt implants. Patients with Baerveldt implants have greater IOP fluctuation than Ahmed implants from POM1-POY5 although this difference is less marked after POY1 (POM1: Ahmed = 6.733 mmHg, Baerveldt = 7.783 mmHg; POM3: Ahmed = 7.145 mmHg, Baerveldt = 7.792 mmHg; POY1: Ahmed = 6.245 mmHg, Baerveldt = 6.734 mmHg; POY5: Ahmed = 5.982 mmHg, Baerveldt = 6.379 mmHg). Mean IOP for patients with Baerveldt implants is lower than Ahmed implants from POM3 to POY5 (POM3: Ahmed = 20.033 mmHg, Baerveldt = 17.612 mmHg; POY1: Ahmed = 17.118 mmHg, Baerveldt = 14.306 mmHg; POY5: Ahmed = 17.480 mmHg, Baerveldt = 14.712 mmHg).

IOP fluctuation at POM1 is strongly correlated with VF progression at POY1 in patients with Baerveldt implants (Pearson correlation coefficient = 0.616).

Seven out of 11 eyes (63.64%) with usable visual field indices after Ahmed implants showed DVF as defined above, while 5 out 14 (35.71%) eyes after Baerveldt implants showed DVF at POY5.

Conclusion: Both Ahmed valved and Baerveldt non-valved glaucoma drainage devices appear to have similar effects on long-term IOP fluctuation in Asian patients. However, a larger proportion of patients with Ahmed implants had DVF at the end of 5 years. Mean IOP has a greater effect on VF progression than IOP fluctuation in comparing both patients with GDIs.

P13 Acceptance, Attitudes and Beliefs of Patients Towards an Ocular Implant for Glaucoma Drug Delivery—A Pilot Study

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Introduction: Medical management with topical eye-drops is the mainstay of treatment for majority of patients with glaucoma, yet non-adherence remains a critical issue. As such, we have developed a surgically implantable long-term delivery system to replace the use of eye-drops. However, a major question regarding implantable medication is its acceptance.

Methods: This cross-sectional study assesses patients' attitudes and beliefs towards medicines, glaucoma and their eye-drops as well as their acceptance towards this potential new treatment method. Patients included in the study had the diagnosis of primary open angle glaucoma or primary angle closure glaucoma presently on topical eye-drops for at least 6 months. Socio-demographic data and information about patients' general and ocular health were collected from their medical records. Beliefs about medicines, glaucoma and their eye-drops and self-reported adherence were assessed using the Beliefs about Medicines—General and Specific Questionnaire, the Brief Illness Perception Questionnaire and the Modified 8-Item Medication Adherence Scale.

Results: Of the 136 patients enrolled, 91 (66.9%) would accept the implant and 105 (77.2%) perceived the implant as helpful. Patients who would accept the implant had a higher daily eye-drop dosing frequency ($P = 0.035$), fewer concerns about the potential adverse effects of eye-drops ($P = 0.015$), felt that their glaucoma would continue for a long time ($P = 0.036$), had a better understanding of the surgical

implant procedure (P <0.001) and stronger beliefs of implant being beneficial over eye-drops (P = 0.002) compared to those who would not accept the alternate implant drug delivery device. Adherence and socio-demographic factors did not have a significant impact on the patients' decisions.

Conclusion: The results indicate that an ocular drug implant appears to be an acceptable alternative to topical eye-drops for a clear subgroup of glaucoma patients.

P14 Multiple-pass vs Single-pass Sciton Laser and the Laser Peel effect—A study on Thermal Damage in TRAM Flap Skin Paddles

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Introduction: Erbium:YAG lasers have been used with increasing frequency in the field of Plastic Surgery for the cosmetic purposes of skin rejuvenation, resurfacing and pigment removal. A major concern for many patients undergoing these procedures is the length of "downtime" and pain they experience postprocedure.

Aim: The aim of this study is to determine the difference in depth of laser burn on skin between a single pass and multiple passes of a similar cumulative depth setting. This difference is examined and measured histologically with the aid of a pathologist. Preliminary results show that multiple passes of a lower energy setting correlates with a deeper and more even field of treatment. This could represent less pain and "downtime" for the patient to achieve a similar aesthetic result.

P15 Complementary Therapies for Hemifacial Spasm

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Introduction: This study aims to determine the prevalence and factors influencing the use of complementary treatment in patients with hemifacial spasm.

Methods: We recruited consecutive patients with HFS and administered a structured questionnaire on the frequency of usage of complementary therapies (CompTh) and investigated the factors influencing the usage. In addition, data on the demographics, severity of HFS, and the use of botulinum toxin were systematically collected.

Results: A total of 96 patients were included. Forty-nine (51%) used one or more forms of CompTh. Thirty-five (71.4%) used one type of CT only and 9(18.4%) and 5(10.2%) used 2 and 3 types of CompTh respectively. Different types of CompTh were used by 49 participants, with acupuncture (52.9 %) being the most common, followed by facial massage (17.6 %) and others. Interestingly, only 2(4.1%) of CompTh users reported the therapies as very helpful, 43% reported the therapies as being sometimes helpful and the rest (53.1%) found the therapies unhelpful. Patients with higher severity of HFS were more likely to use CompTh. Rate of usage of CT was 27.3%, 37.8% and 69.2% among patients with HFS severity of 2, 3 and 4, respectively (P = 0.002).

Conclusion: At least half of our HFS patients have utilised one or more forms of complementary therapies. Acupuncture and facial massage were most commonly used therapies. However, only 4% reported significant improvement with these kinds of therapies. Patients with higher severity of HFS were more likely to seek complementary therapies. The mean cost of treatment was about US$78 per patient per month.

P16 Evaluation of LLGL2 as a Risk Gene for Ischaemic Stroke

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Introduction: This paper aims to determine if the genome wide linked variant, LLGL2 single nucleotide polymorphism, SNP (rs1671021) is a risk factor for ischaemic stroke in Singapore.

Methods: Patients diagnosed with ischaemic stroke at NNI and SGH campuses were included. Nine hundred and thirty individuals with ischaemic stroke and 635 controls were genotyped using a real-time 7500 PCR platform (Applied Biosystem).

Results: LLGL2 was found to be in Hardy-Weinberg Equilibrium among controls using Fisher's exact test. Logistic regression showed that there is no effect of LLGL2 gene polymorphism on the development of strokes. Subset analysis of types of ischaemic stroke is currently underway.

Conclusion: The genome wide linked variant, LLGL2 SNP (rs1671021) is not a risk factor for ischaemic stroke

in Singapore. Further gene-gene and gene-environmental evaluation may be useful.

P17 Bilateral Total Upper and Lower Eyelid Reconstruction Using a Single Expanded Forehead Flap

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Introduction: We report a novel approach in which one pedicled forehead flap was used to reconstruct bilateral eyelids in the same patient.

Methods: A 40-year-old male sustained traumatic bilateral eye blast injury resulting in bilateral orbital exenteration and a need for bilateral socket and eyelid reconstruction. First, the sockets were each resurfaced with a temporalis flap. A subgaleal tissue expander was placed at the forehead. This was expanded over several weeks till enough tissue was obtained for the pedicled flap. In stages, a single expanded forehead flap was used to reconstruct both the upper and lower eyelids firstly on the left side then on the right side, based on a vascular crane principle.

Results: With this method, we were able to recreate the upper and lower eyelids on both sides of the face with a single pedicled flap. While the eyelids are presently not able to articulate, with further procedures, movement of the various reconstructed eyelid tissues will gradually be introduced.

Conclusion: This method allows the reconstruction of the upper and lower eyelids on both sides of the face with a single pedicled flap.

P18 Vascularised Lymphoadiposal Free Flap Transfer to Groin with Lymphaticovenular Anastomoses for Treatment of Pelvic and Lower Limb Lympoedema

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Introduction: Combined pelvic and lower limb lymphoedema is a rare complication of pelvic surgery. Patients with pelvic lymphoedema have complaints of pain, swelling, lymphorrhoea and cellulitis. They are unable to undergo proper compressive therapy compared to patients with isolated lower limb lymphoedema. Current surgical treatments for lymphoedema include lymphaticovenular anastomosis, vascularised lymphoadiposal flap or lymph node transfer, liposuction and excision. We describe a novel technique of free vascularised lymphoadiposal flap with lymphaticovenular anastomoses for treatment of pelvic and lower limb lymphoedema.

Methods: The patient is a 39-year-old lady with progressive pelvic and lower limb lymphoedema who had undergone radical hysterectomy for cervical cancer. She had no radiotherapy or chemotherapy post surgery. Pretreatment lymphoscintigraphy shows partial block at the pelvis. A vascularised lymphoadiposal flap containing 2 lymph nodes was harvested from her left axilla. It was transferred to the left groin and anastomozed to the superficial circumflex iliac vessels. A lymphaticovenular anastomosis was established by joining a lymphatic channel in the flap to a superficial venule within the groin. In addition, multiple lymphaticovenular anastomoses were performed for bilateral lower limbs.

Results: She was followed up for 1 year. She showed reduction in bilateral lower limb girth and improvement of the pelvic lymphoedema with no cellulitis during the duration of follow-up. Lymphoscintigraphy shows complete resolution of stasis in the pelvic region with activity at the transferred lymph node in the left groin.

Conclusion: Vascularised lymphoadiposal flap with lymphaticovenular anastomoses is a novel treatment that can significantly improve pelvic and lower limb lymphoedema.

P19 Subcutaneous Lymphatics—Myth or Saviour?

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Introduction: This paper aims to evaluate the anterior abdominal wall lymphatic channel.

Methods: The anterior abdominal wall tissue harvested post lipectomy was utilised. There was minimal morbidity to the donor, as these tissues would have been discarded

after surgery.

Histology of fresh specimens of the anterior abdominal wall tissue were done using patent blue dye staining techniques, peroxide staining techniques, and electron microscopy with aid of immunological markers e.g. lymphatic vessel endothelial receptor 1 (LYVE-1) and D2-40.

LYVE-1 binds to lymphatic endothelial cells lining the lymphatic channels, preferentially to the initial lymphatic channels rather than terminal lymphatic channels, allowing the identification and mapping of lymphatic channel network. The D2-40 provides better identification of all lymphatic channels, including its valves.

Results: We have found evidence of lymphatic channels in the subcutaneous layer. The number channels decreases as the distance from the dermis increases. There are predominantly initial lymphatics at the superficial layer and more terminal channels deeper. There is a difference in the lymphatic flow from superficial to deep.

Conclusion:

1. These results provide us with basic scientific knowledge on the lymphatic framework of the anterior abdominal wall.
2. With this knowledge, we will be able to transplant abdominal subcutaneous tissue containing healthy lymphatics to diseased parts in order to promote drainage of lymphatic fluids and provide a more permanent solution to this difficult problem.

P20 Neurotisation of Transverse Rectus Abdominis Myocutaneous Flap

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Introduction: The aim of this paper is to evaluate the improvement in breast sensibility following immediate neurotisation of Transverse Rectus Abdominis Myocutaneous (TRAM) flap for breast reconstruction.

Methods: Patients undergoing TRAM reconstruction from October 2010 to October 2011 were offered neurotisation. To date, 17 patients had TRAM reconstruction with 13 undergoing co-adaptation to intercostal nerves. Matched controls were obtained from patients with TRAM reconstruction 1 year prior to October 2010 and no neurotisation.

Semmes-Weinstein monofilaments were used for assessment at centre, 4 quadrants within the flap 2 cm from centre and 4 quadrants 2 cm away from the flap. The 4 quadrants were at 3, 6, 9 and 12 o'clock positions. The patients were assessed at 1, 3, 6, 9 and 12 months postoperatively.

Results: At 1 year, average sensibility of non-neurotised flap: centre 55 g; 2 cm from the centre 36 g; and 2 cm from flap 5 g. Neurotised flap: centre 223 g, 70 g; 2 cm from the centre 145 g, 31 g; and 2 cm from flap 82 g, 60 g; at 1 and 3 months respectively.

Conclusion: The preliminary results show promising improvement of sensibility from 1 to 3 months following neurotisation. Further evaluation at 1 year will yield comparative results with non-neurotised flaps.

P21 Free Vascularised Cervical Lymph Node Transfer in the Treatment of Lower Limb Lympedema – A Novel Technique

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Introduction: Lower limb lymphedema is a difficult and recurrent condition that can complicate oncological treatment of the pelvic region. Many options including shunting and resection exist in the surgical management repertoire. Recently, lymphatic reconstruction with vascularised lymph node transfers have shown successful long-term results. We describe a novel technique using dispensable cervical lymph nodes to reconstruct the lymphatic drainage of the lower limb incapacitated by effects of treatment and disease.

Methods: Two patients with Campisi grade 3 to 4 unilateral chronic lower limb lymphedema post pelvic surgery 6 to 8 years after treatment were selected. Their pre-treatment lymphoscintigraphy scan showed complete lymphatic block at the level of the pelvis. Both had neck skin crease incision to access. The vascularised cervical lymph node with the surrounding adiposal tissues was transferred to the affected groin. The recipient vessels used for anastomosis was the superficial circumflex iliac vessels. Multiple lymphaticovenular anastomoses were performed for bilateral lower limbs concurrently.

Results: Both patients had significant reduction in lower limb circumference of between 3 to 10 cm at specific levels, 4 cm apart upward from lateral malleolus to the groin, softening of their lymphedema and completely resolved pitting edema. There were no further episodes of cellulitis postoperatively. There was no donor site morbidity and the neck skin crease incisions were not noticeable by 3 months.

Conclusion: Long-term follow-up of these patients will later be reported. This novel treatment, with promising short-term results and minimal donor site morbidity should be considered in the microsurgical repertoire of lymphedema management.

P22 A Topographic Mapping of Breast Sensation in the Female Population

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Introduction: Nipple and breast sensation are important concerns which affects women's quality of life. The nipple is conventionally perceived as the erogenous area of the breast. The purpose of this study is to obtain an objective and quantitative topographic map of breast and nipple-areolar complex sensibility in women.

Methods: Thirty-two women and 63 breasts were evaluated during the period of October 2010 to May 2011 at the National University Hospital. These patients were recruited before they underwent breast related surgery by our division. Semmes-Weinstein monofilaments were used to assess light touch sensibility. Thirteen selected areas of each breast were assessed. These areas include the nipple tip, 4 quadrants each on the areola, 4 cm and 6 cm away from the nipple tip. The 4 quadrants are at the 3, 6, 9 and 12 o'clock positions.

Results: Our results show slight topographic somatosensory difference between each breast in the same person. The nipple-areolar complex is less sensitive as compared to peripheral breast skin contrary to popular belief. Half of the study population's nipple-areola complex sensation range between 0.16 g and 0.6 g. Comparatively, about 80% of peripheral breast skin sensation range between 0.008 g and 0.07 g.

Conclusion: We conclude that the breast skin is more sensitive to light touch compared to the nipple-areolar complex. Thus there should be a shift in general perception of breast and nipple-areolar complex sensibility based on the objective data.

P23 The Optimal Screen Sizes of Reading Devices for Diabetic Retinopathy Screening

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Introduction: This paper aims to investigate the use of portable reading devices for retinal images interpretation in screening diabetic retinopathy (DR).

Methods: One hundred sets of three-field (optic disc, macula and temporal views) colour retinal still images (50 normal and 50 with DR) captured by FF450 plus (Carl Zeiss, North America) were interpreted on the 27-inch iMac, 15-inch MacBook Pro and 9.7-inch iPad. All images were interpreted by a retinal specialist and a medical officer. We calculated the sensitivity and specificity of the 15-inch MacBook Pro and 9.7-inch iPad in detection of DR signs and grades with reference to the reading outcomes obtained using a 27-inch iMac reading monitor.

Results: In detection of any grade of DR, the 15-inch MacBook Pro had sensitivity and specificity of 96% (95% confidence interval [CI], 85.1 to 99.3) and 96% (95% CI, 85.1 to 99.3) respectively for retinal specialist and 91.5% (95% CI, 78.7 to 97.2) and 94.3% (95% CI, 83.3 to 98.5) respectively for medical officer while for the 9.7-inch iPad, they were 91.8% (95% CI, 79.5 to 97.4) and 94.1% (95% CI, 82.8 to 98.5) respectively for retinal specialist and 91.3% (95% CI, 78.3 to 97.1) and 92.6% (95% CI, 81.3 to 97.6) respectively for medical officer.

Conclusion: The 15-inch MacBook Pro and 9.7-inch iPad had excellent sensitivity and specificity in detecting diabetic retinopathy and hence, both screen sizes can be utilised to effectively interpret colour retinal still images for DR screening in a routine, mobile or tele-ophthalmology setting. Future studies could explore the use of more economical devices with smaller viewing resolutions to reduce cost implementation of DR screening services.

P24 Retinal Digital Videos at Different Compression Levels for Diabetic Retinopathy Screening

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Introduction: This study aims to validate the optimal compression level of retinal video recording for diabetic retinopathy screening without compromising its diagnostic accuracy.

Methods: A total of 20 retinal videos performed on patients with diabetes (10 normal and 10 eyes with diabetic retinopathy) were evaluated in our study. All uncompressed raw retinal videos were compressed to 3 different levels —10% (Group 1), 3% (Group 2) and 1% (Group 3) of the original file size. The sensitivity, specificity and Pearson's Correlation were calculated for each compression level.

Results: The mean (±SD) age of participants was 57.7 ± 3.5 years and mean HbA1c was 8.0 ± 2.0%. For group 1 and 2, 75% (n = 15) of retinal videos were graded 'acceptable' while 25% (n = 5) were 'excellent'. In contrast, 75% of retinal videos in group 3 were graded as 'pixelated but interpretable', 20% (n = 4) were 'uninterpretable' and only 5% (n = 1) were graded as 'acceptable'. With reference to the raw uncompressed retinal videos, the sensitivity for group 1, 2 and 3 were 100%, 100% and 88.9%, respectively while the specificity were 100%, 90.9% and 90.9%, respectively. The Pearson correlation based on uncompressed videos for group 1, 2 and 3 were 1.0, 0.985 and 0.966, respectively.

Conclusion: In conclusion, retinal videos can be compressed from 1 GB (100%) to 30 MB (3%) of its original file size without compromising the retinal videos quality, sensitivity and specificity of diabetic retinopathy grading. By compressing the retinal video file size, the retinal videos transmission rate in the setting of teleretinal video screening for diabetic retinopathy could significantly be sped up.

P25 A Portable Multipurpose Ophthalmic Imaging Device for Diabetic Retinopathy Screening

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Introduction: This study aims to investigate the efficacy of a portable and inexpensive multipurpose ophthalmic imaging device, Ophthalmic Imaging Device EyeScan (CA, USA), for diabetic retinopathy (DR) screening.

Methods: One hundred and thirty-six patients were recruited to undergo three-field 30 degrees (optic disc, macular, and temporal view) non-stereo retinal digital still photography captured by EyeScan and FF450 plus (Carl Zeiss Meditec, North America). All patients were examined by a senior consultant ophthalmologist using the slit-lamp biomicroscopy (reference standard). Two readers (a consultant ophthalmologist and a medical officer) interpreted all retinal images using the International Clinical Diabetic Retinopathy Severity Scales.

Results: For detection of any grade of diabetic retinopathy, EyeScan had a sensitivity and specificity of 93% and 98%, respectively (ophthalmologist) and 92% and 95%, respectively (medical officer). In contrast, FF450 plus images had a sensitivity and specificity of 95% and 99%, respectively (ophthalmologist) and 92% and 96%, respectively (medical officer). For sight-threatening diabetic retinopathy, the sensitivity and specificity of EyeScan and FF 450 plus graded by both readers were 100%. The overall kappa statistics for diabetic retinopathy grading for EyeScan and FF450 plus were 0.93 and 0.95 for ophthalmologist and 0.88 and 0.90 for medical officer, respectively.

Conclusion: The retinal still photographs captured by the EyeScan had high sensitivity, specificity and Kappa correlations for detection of diabetic retinopathy on the subjects evaluated in our study. Because of this, this device could be potentially utilised by the primary eye care providers for DR screening in a routine, mobile or tele-ophthalmology setting.

P26 Australian National Survey: Diabetic Retinopathy Screening by Community Optometrists

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Introduction: This study aims to investigate the current diabetic retinopathy screening practices of Australian optometrists in the community.

Methods: A total of 1000 optometrists across Australia (7 states) were mailed a survey package consisting of a

self-administered questionnaire enquiring the optometrists' screening practices/attitudes and hypothetical clinical scenarios.

Results: A total of 568 optometrists (57%) responded to the survey. Of the screening barriers for optometrists not performing dilated ophthalmoscopy, patients' unpreparedness to drive post dilation (51%) and the fear of angle closure glaucoma (13%) were the 2 leading main barriers. Those who had strong desire to screen for diabetic retinopathy were more likely to use a retinal camera (P <0.005). Use of a retinal camera was significantly associated with an increased confidence in detecting clinical signs of diabetic retinopathy including macular oedema (P <0.001). More than 90% of optometrists would refer patients with severe non-proliferative and proliferative diabetic retinopathy to an ophthalmologist. Nevertheless, up to 60% of optometrists would not refer patients with macular oedema and normal vision to an ophthalmologist.

Conclusion: The overall diabetic retinopathy management by Australian optometrists were acceptable except for diabetic macular oedema. This will need to be addressed promptly as diabetic macular oedema remains the commonest cause of visual impairment for diabetic patients. The use of retinal cameras should be encouraged to improve overall optometric diabetic retinopathy management as it was associated with increased confidence in detection of diabetic retinopathy signs in the participant optometrists evaluated in our study.

P27 Comparison of Two Dual Energy X-ray Absorptiometry (DXA) Systems for the Measurement of Bone Mineral Density (BMD) for Singaporeans

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Introduction: The Singapore restructured hospitals use the Hologic DXA system with Singapore reference data. Recently, our hospital acquired the Lunar system, which uses reference data from China. We seek to compare the BMD and T-score between the Hologic QDR 4500 Elite with the Lunar Prodigy Advance DXA systems in different skeletal regions of interests (ROIs).

Methods: This is a cross-sectional study of 37 subjects who had their BMD measured and T-score calculated within a month of each other on 2 DXA systems with different reference data. The values were compared using the Bland-Altman approach.

Results: Of the subjects, 86.5% were females. The majority were Chinese (86.5%). The mean (SD) age and BMI was 54.0 (12.2) years and 23.0 (2.9) kg/m^2, respectively. The mean BMD (SD) for lumbar spine (LS), total hip (TH) and femoral neck (FN) was 0.883 (0.130), 0.808 (0.113) and 0.711 (0.108) g/cm^2 for Hologic and 1.041 (0.158), 0.900 (0.127) and 0.856 (0.115) g/cm^2 for Lunar, respectively. This gives a mean difference of 0.157 (0.039), 0.091 (0.033) and 0.145 (0.039) g/cm^2, P <0.001, corresponding to a percentage difference of 17.8% (3.5%), 11.3% (3.9%) and 20.8% (5.8%), respectively. The mean (SD) T-scores for the LS, TH and FN were –1.0(1.1), –1.0 (1.0) and –1.1(1.0) SD for Hologic, and –0.6 (1.3), –0.5 (1.0) and –0.5 (0.9) SD for Lunar, respectively. This gives a mean difference of 0.4 (0.3), 0.5 (0.3) and 0.5 (0.3) SD, respectively, P <0.001. The maximum difference was as high as 1.1SD in all ROIs with 32.4% of subjects showing a difference in WHO classification between the 2 systems.

Conclusion: There are widely differing BMDs and T-scores between the 2 systems. Users need to take this into consideration when deciding which DXA system to use and when interpreting results.

P28 Endovascular Treatment of Non-maturing Arteriovenous Fistulas

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Introduction: This paper aims to study the results of percutaneous treatment of non-maturing arteriovenous fistulas (AVFs).

Methods: Reports of all AVF angioplasties performed at our department from 2008 to 2010 were retrospectively reviewed. All cases that were referred for non-maturation were included into the study. The medical records of these patients were analysed. Technical success was defined as ≤30% residual stenosis after angioplasty. Clinical success was defined as at least 1 successful hemodialysis session using the angioplastied AVF, without new fistula or graft creation, surgical revision or insertion of Tenckhoff catheter within 4 weeks after angioplasty.

Results: Out of 1968 AVF angioplasties, 105 patients (mean age 63 years; 57% male) had endovascular treatment for non-maturing AVF. All of them underwent angioplasty for at least 1 hemodynamically significant stenosis. Additional coiling of collateral veins was performed in 6 patients (5.7%). Technical success was achieved in 95%. Complication rate

was 17%, all of which were minor complications. The clinical success rate was 71%. Primary patency rates post-angioplasty at 3 months, 6 months and 1 year were 83%, 43% and 28%, respectively. Secondary patency rates at 3 months, 6 months and 1 year were 91%, 79% and 72%, respectively. An average of 1.7 interventions per access-year was required to maintain AVF patency.

Conclusion: Percutaneous intervention can successfully promote maturation in the majority of non-maturing AVFs. Long-term patency rates achieved are comparable to AVFs that mature well without intervention.

P29 Intra-Arterial CT Angiography: An Evaluation of a New Tool in Guiding Extrahepatic Vascular Embolisation Procedures

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Introduction: This study aims to evaluate the usefulness of Intra-Arterial CT Angiography (IACTA) in guiding extrahepatic vascular embolisation.

Methods: A retrospective review of 22 patients from October 2008 to January 2010 referred for vascular embolisation procedures was performed (14 male, 8 female; mean age 60.9 years). A hybrid angiography-CT system (Hybrid-Angiographic Infinix Activ integrated with Aquilion 16 Slice Self Propelled, Toshiba Medical Systems Corporation, Japan) was used in each case. A floating table top and a mobile CT gantry obviated the need for patient transfer between DSA and IACTA imaging. All CT images were then reconstructed in standard and fine cuts with multiplanar reconstructions using our department protocol. The DSA and IACTA images were retrospectively reviewed by 2 radiologists and tabulated for comparison.

Results: Mesenteric angiography (n = 12) for gastrointestinal bleeding was positive in both DSA and IACTA in 3 patients, negative in both DSA and IACTA in 5 patients and positive in IACTA but negative in DSA in 3 patients. In one patient with an intra-abdominal AVM, IACTA excluded bowel supply for safe embolisation.

Renal angiography (n = 3) for bleeding was positive in both DSA and IACTA in 2 patients, and positive in IACTA but negative in DSA in 1 patient.

Bronchial artery IACTA in 5 patients for haemoptysis demonstrated spinal supply in 2 patients and oesophageal supply in 1 patient with confidence. Thus, non-target embolisation was safely avoided.

In 2 patients with abdominal wall haematoma, IACTA demonstrated with confidence the exact source of bleeding.

Conclusion: IACTA improves the confidence level and safety of the interventionalist by providing a more detailed target and non-target vascular map. At the same time, it reduces the procedure duration by elegantly demonstrating the exact point of pathology even during non-selective angiography.

P30 Percutaneous Oesophageal Stretching for Long Gap Oesophageal Atresia for Growth Induction: Early Experience

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Introduction: Primary surgical repair for long gap oesophageal atresia (EA), more than 4 vertebral body heights, remains a challenge. Different techniques have been described for approximation of the oesophageal pouches prior to definitive surgery. We describe 2 patients that underwent percutaneous fluoroscopic guided stretching of the oesophageal pouches.

Methods: Two patients with pure long gap EA (without tracheo-oesophageal fistula) were identified during antenatal screening, with diagnoses confirmed postnatally using contrast studies. Both had a gap of 6 vertebral bodies. Surgical gastrostomies were fashioned to allow feeding.

Serial fluoroscopic guided stretching of the upper and lower pouches commenced at day 19 and 35, respectively. The lower pouch was accessed via the gastrostomy, stretched with a 10F dilator in one patient and a 16F feeding tube in the other. Simultaneous stretching of the upper pouches was also performed with 16F feeding tubes. Both patients also had daily stretching of the upper pouch on the ward. One patient had 6 sessions (over 89 days) and the other 5 sessions (over 42 days).

Results: The gaps were reduced to 1 and 2 vertebral body heights, with no procedural complications encountered. Surgical oesophageal anastomoses were performed on day 107 and 100 respectively. Apart from surgery related complications, both had gastro-oesophageal reflux. They continue to thrive and achieved the appropriate developmental milestones.

Conclusion: Primary anastomosis for the repair of EA yields the best physiological outcomes. Serial percutaneous stretching under fluoroscopic guidance can successfully approximate the gap significantly to allow for subsequent primary oesophageal repair.

P31 Role of Digital Breast Tomosynthesis in Reducing Recall Rate in Breast Cancer Screening in the Asian Population

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Introduction: The tridimensional (3D) breast imaging (digital breast tomosynthesis DBT) is a new image modality introduced in Asia, firstly in our hospital. Tomosynthesis has the ability to evaluate glandular tissue overlap mimicking or obscuring breast lesions.

Previous limited studies in the literature have suggested that adding tomosynthesis to standard 2D imaging in breast screening could reduce recall rate by 30%. We aim to support these reports in our pilot study by estimating the effectiveness of tomosynthesis in the Asian population.

It is also objective to assume that this technique will reduce percentage of missed cancers.

Methods: We used tomosynthesis instead of standard mammographic additional views as a tool in assessment of 67 patients recalled for asymmetric densities, stromal distortions, masses and microcalcifications after having standard 2D mammograms. The tomosynthesis images the breast in 1 mm thick high resolution slices.

Results: After DBT assessment, 32 out of 34 cases (84.2 %) of asymmetric densities, 16 out of 19 cases (62 %) of stromal dsistortions were normal, and 4 out of 8 cases (50 %) of indeterminate masses were clearly benign. Six cases of microcalcifications remained indeterminate after the assessment. Fifty-one out of 67 patients would not have been called back if their initial mammograms would be combination of 2D and 3D imaging.

Conclusion: Our pilot research study did show significant recall rate reduction, validating use of digital breast tomosynthesis (3D) and digital mammography (2D) combined, as a standard tool in future in routine breast screening programme.

P32 Retrospective Analysis for Diagnostic Accuracy of Thyroid Nodule Fine Needle Aspiration Biopsy in 471 Patients

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Introduction: The objective of our study was to assess diagnostic efficacy of ultrasound guided fine needle aspiration biopsy (FNAB) of thyroid nodules performed in the Department of Radiology at our institution for the diagnosis and exclusion of malignancy.

Methods: Approval was obtained from the Ethics Committee and Institutional Review Board for this retrospective study from January 2003 to June 2008 involving 471 patients (395 female and 76 male patients) with a mean age of 51.3 years (range, 16 to 88 years). FNAB of the thyroid nodules was performed with real-time ultrasound guidance, without a cytotechnician on site.

Results: Of the 600 nodules analysed, the diagnostic yield was 82.7% (517/625 biopsies). A total of 5 papillary thyroid carcinomas (PTCs) were finally diagnosed amongst 68 nodules (7.3%) with non diagnostic yields on cytology. The sensitivity, specificity, positive predictive value (PPV) and negative predictive values (NPV) were 85.7%, 99.7%, 92.3% and 99.5%, respectively. "Non diagnostic sample" rate from subcentimetre nodules was not significantly different from larger nodules.

Conclusion: US guided FNAB of the thyroid gland is a simple, minimally invasive, outpatient procedure with high specificity, high PPV and NPV. Up to a fifth of the nodules yield non-diagnostic samples on US guided FNAB which is worrisome because approximately 7% of these cases harbour malignancy. In this subset, the patients with high risk factors and suspicious US features may be subjected to repeat US-guided FNAB with an on-site cytotechnician.

P33 Itemised or Prose Radiology Reports? A Survey of Hospital Clinicians and Radiologists Preferences

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Introduction: The aim of this study is to determine clinicians' and radiologists' preferences regarding the format of the radiology report and contents.

Methods: Questionnaires were sent out to all clinicians

from various departments and radiologists practicing within Khoo Teck Puat Hospital, Singapore. The participants were invited to rank a variety of hypothetical ultrasound and computed tomography scan reports according to their level of satisfaction and provided reasons for their choices. Demographic information regarding the participants was obtained in the questionnaire.

Results: A total of 20 radiologists and 20 clinicians responded (ongoing study). There were distinct differences between the responses from the radiologists and the clinicians. In general, most radiologists still preferred the prose reporting style, citing familiarity with this style of reporting. Most clinicians preferred itemised radiology reports as they felt that these reports were clearer and easier to comprehend.

Conclusion: Itemised reports are more popular with referring clinicians due to their clarity. Prose reports foster a lack of standardisation of content among different radiologists. A shift in paradigm to itemised reporting will make for faster, more consistent radiology reports that facilitate complete documentation of information and measurements. Changing the way radiology reports are structured requires adaptation among radiologists. Improved training in reporting during the radiology residency is de rigueur to familiarise radiologists with a new style of reporting.

P34 Cardiovascular Conditions Associated with Aortic Root Dilatation as Seen on Cardiovascular Magnetic Resonance Imaging

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Introduction: Dilatation of the aortic root is not infrequently seen as an incidental finding on cardiovascular magnetic resonance imaging (CMR) studies. This study describes the conditions that are associated with aortic root dilatation.

Methods: The clinical charts, reports and images of all patients undergoing CMR studies between were reviewed for the presence of aortic root dilatation. The incidence of aortic root dilatation and related cardiovascular conditions were studied.

Results: There were 694 studies done between January 2008 and June 2011. Seventy-three studies (66 patients, 45 male) were noted to have aortic root dilatation. The mean age of patients was 36.1 ± 22.6 years. Ten were known to have aortic root dilatation. Other indications for the CMR scan were arrhythmia (n = 5), coronary artery disease (n = 8), congenital heart disease (CHD) (n = 32), cardiomyopathy (n = 5), cardiac mass (n = 2) and aortic valve lesions (n = 4).

Patients with known aortic dilatation included those with cutis laxa, Marfan syndrome and Loeys-Dietz syndrome. Bicuspid aortic valve occurred in 5 patients. Atherosclerotic plaques were seen in 2 patients with aortic root dilatation. The more common CHDs associated with aortic root dilatation include Fallot's tetralogy (n = 6), pulmonary atresia (with or without ventricular septal defect) (n = 7) and coarctation of aorta (n = 6). In 12 patients, the cause of the aortic root dilatation was not evident.

Conclusion: Aortic root dilatation is seen in 11% of CMR studies done at our hospital. Our findings show that congenital heart disease is commonly associated with aortic root dilatation. In 10% of our patients, the cause of aortic root dilatation is unexplained.

P35 Embolisation of a Renal Arterio-venous Malformation with Onyx

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Introduction: Renal arterio-venous malformations (AVMs) are pathological intra-renal direct communications between the arterial and venous systems, most commonly presenting with gross haematuria. These may be congenital, or acquired (commonly iatrogenic, e.g. post biopsy). While nephrectomy is an established definitive therapy, endovascular approaches offer a significant nephron sparing advantage. A multitude of embolisation techniques have been described, with various advantages and limitations. We present 2 cases of AVMs managed successfully with Onyx, which has thus far been used far more commonly in the neurointerventional arena. The rationale and technical details for this procedure are discussed in this poster.

P36 Colour Doppler Duplex Evaluation and Salvaging Non-functioning Haemodialysis Fistulae by Percutaneous Intervention—An Institutional Experience

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Introduction: This study aims to discuss the role of imaging in identifying the cause of non-functioning haemodialysis

fistula with correlation between colour Doppler and angiography, and to report our experience in salvaging non-functioning dialysis fistulae by percutaneous intervention.

Methods: Sixteen patients (9 male, 7 female) mean age of 55 years, range, 34 to 72 with non-functioning haemodialysis fistulae planned for angioplasty after colour Doppler evaluation. The colour Doppler findings were correlated with the angiogram findings. Improvement in the angioplasty was evaluated radiologically by contrast injection after the balloon dilatation and clinically by initiation of haemodialysis.

Results: Colour Doppler findings correlated well with angiogram findings in 14 patients (87.5%). On initial venography, significant (>70 %) stenosis or occlusion at the venous side of the fistula was the most common cause of non-functioning fistula in 68% (significant stenosis at the venous side — 6/16 patients, occlusion—5/16). Narrowing at the anastomotic site was seen in 2 patients and tight stenosis in the arterial side of the fistula in 1 patient. Two patients had occlusion of the A-V graft. Angioplasty was successfully performed in 11 cases. Angioplasty could not be performed in 4 patients with total occlusion of venous side of the arterio-venous fistula and one patient with AV graft occlusion.

Improvement in the stenosis after the angioplasty was noted in 10/11 patients (90.9%). Clinical success (initiation of dialysis) was achieved in 9/11 patients (81.8%).

Conclusion: Colour Doppler can reliably identify the abnormality and percutaneous intervention can effectively salvage the arterio-venous fistula. Complete venous occlusion and graft may not be amenable for angioplasty.

Long-term follow-up is necessary to evaluate the primary patency rate and for any requirement of repeat angioplasty.

P37 Visceral Adipose Tissue in Chinese and Indian Men and its Correlates with Cardio-Metabolic Risk Factors

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Introduction: Obesity is a major health-care issue and visceral adipose tissue (VAT) is widely linked with the metabolic consequences of obesity. We evaluated for the (i) anatomical landmark where VAT in Asian men best captures the distribution of abdominal fat, and (ii) its correlates with cardio-metabolic risk factors.

Methods: All subjects gave informed consent prior to medical examination, venepuncture and unenhanced abdominal MDCT scan. Five contiguous 1-mm sections centered at T11/2, T12/L1, L1/2, L2/3, L3/4, L4/5 and L5/S1 disk levels were segmented into subcutaneous and VAT compartments after applying predefined window settings of –195 to –45 HU for fat, on Analyze 8.1. The VAT volume at each level was correlated with the mean total VAT volumes at all 7 levels.

Results: VAT volumes at each 7 levels strongly associated with total VAT volume (r >0.87) and this was strongest at L2/3 (r = 0.98), compared to the traditional L4/5 level (r = 0.89). In 61 Chinese and 59 Indian men (mean ages, 66.3 to 65.8 years), VAT volume at L2/3 level was 78022.0 ± 36323.7 and 89148.1 ± 42238.5 mm^3, and significantly correlated with BMI (P <0.0005), waist (P <0.0005) and hip (P <0.0005) circumferences, fasting glucose (P = 0.009) and HDL (P = 0.008).

Conclusion: VAT volume at L2/3 level correlated strongest with total VAT volume, and also significantly with cardio-metabolic risk factors. Establishing the most reliable single level VAT measurement to best estimate total VAT has important radiation dose and cost implications in large-scale obesity-related health risk CT studies.

P38 Intergrating Holistic Care Through Case Management to Enhance Better Clinical Outcomes for Patients in A Tertiary Psychiatric Hospital

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Introduction: Holistic patient care addresses their physical, social, psychological and spiritual needs as well as the family and community's needs. In the hospital, the multidisciplinary team provided treatment and care but there was care fragmentation and a lack of discharge continuity which case management (CM) sought to improve.

Aim: This paper describes the CM interventions and discharge outcomes in an acute psychiatric ward at IMH.

Methods: On admission, the CM

1. assesses, evaluates, plans care and monitors patients' outcomes,

2. advocates, does service linkages, crisis intervention, supportive therapy and psycho education.

On discharge she monitors patients through phone calls and treatment appointment reminders.

The results were analysed with Microsoft Excel programme.

Results: From March 2010 to March 2011, 639 patients were admitted and discharged, 103 pts (16%) defaulted only after 3 months of discharge and 24 patients (3.8%) readmitted within 30 days.

CM interventions included 198 psycho education, 212 counselling and 230 telephonic case management sessions.

Also, patient improvement was monitored using the Personal and Social Performance (PSP) scale which measures 4 domains namely socially useful activities, personal and social relationship, self care and disturbing and aggressive behaviors. The total mean PSP score for the patients was 28 on admission and 60 on discharge. This indicated that patients had improved in their personal and social functioning levels.

Conclusion: The results emphasizes that comprehensive coordination of services over the continuum of care which is achievable through the case management process, improves quality of care and enhance clinical outcomes for our customers.

P39 Australian National Survey: Diabetic Retinopathy Screening by General Practitioners

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Introduction: This study aims to describe current diabetic retinopathy (DR) screening and management practices amongst Australian general practitioners (GP).

Methods: A self administered questionnaire on DR management was mailed to 2000 rural and urban GPs across Australia. The survey comprised questions relating to the practice details, screening pattern/attitudes and 12 hypothetical DR clinical scenarios.

Results: A total of 429 GPs completed the questionnaire. Only 29% of GPs read the national DR management guidelines at least once and 41% had 'moderate' to 'strong' desire to screen for DR. A majority of GPs (74%) reported not routinely examining their diabetic patients for DR. A lack of confidence in detecting DR changes (86.4%) and time constraints (73.4%) were the two major barriers to GPs performing dilated fundoscopy on diabetic patients. GPs who had confidence in detecting DR clinical signs were 3.31 times more likely to have desire to screen for DR (OR = 3.31, 95% CI, 2.00 to 5.47, P <0.001). Reading the guidelines at least once was associated with the confidence in DR detection (OR = 2.11, 95% CI, 1.28 to 3.50, P <0.005). Despite low confidence in detecting DR, GPs were proficient in appropriately managing hypothetical DR clinical scenarios.

Conclusion: Australian GPs had little desire and low confidence to screen for DR despite sound DR management knowledge. Increasing GPs confidence in detecting DR may help to improve DR screening in the community and reduce the incidence of DR-related blindness in Australia and alternative methods such as non-mydriatic retinal photography need to be explored to help examine those who are currently not being examined.

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