SUPPLEMENT 6

HONG KONG MEDICAL JOURNAL 香港醫學雜誌 Volume 30 Number 5 October 2024 30(5s)

Volume 30 Number 5 October 2024

Supplement 6

HONG KONG MEDICAL JOURNAL 香港醫學雜誌

The official publication of the
Hong Kong Academy of Medicine and
the Hong Kong Medical Association

37th Annual Scientific Meeting of The Hong Kong Neurological Society

9 – 10 November 2024

第三十七屆
香港腦科學會　週年學術會議

二零二四年十一月九日至十日

ISSN 1024-2708

香港醫學專科學院出版社
HONG KONG ACADEMY OF MEDICINE PRESS

HONG KONG MEDICAL JOURNAL 香港醫學雜誌
Volume 30 Number 5 **October 2024**
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37th Annual Scientific Meeting of The Hong Kong Neurological Society

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Scientific Programme

Venue: Grand Ballroom, Level 3, JW Marriott Hotel, Admiralty, Hong Kong SAR

9 November 2024, Saturday

08:30 – 08:45	Registration	Poster Room **Poster Presentation**
08:45 – 09:45	**Dissertation Highlights** Panel Judges: *Dr Herrick LAU, Dr Noble KWAN* **Timing to start anticoagulants after acute ischaemic stroke in patients with non-valvular atrial fibrillation** *Ganhui Emma CAI* **Clinical course of mitochondrial disease with m.3243A>G variant in MT-TL1 gene in Hong Kong** *Yat Kwan CHAN* **Neurosyphilis: 10-year case series and analysis of correlation of serum and cerebrospinal fluid titre** *Chi Hou Samuel HUI* **Predictive risk factors for severe relapsing neuromyelitis optica spectrum disorders: a single-centre retrospective cohort study** *Jingliang Tommy TANG* **Comparative effectiveness and safety of four second-line antiepileptic drugs as adjunctive treatment in adults: a three-year retrospective cohort** *Man Sin WONG*	
09:45 – 10:00	Break/Air time	
10:00 – 10:45	**Stroke Symposium** (co-organised with Hong Kong Stroke Society) Chairpersons: *Dr Richard LI, Dr SH LI* **Advances to improve outcome after recanalisation therapy with cerebroprotective agents** *Natan BORNSTEIN*	
10:45 – 11:45	**Medison Rare Disease Symposium** Chairpersons: *Dr Sheng BUN, Dr WT WONG* **New direction in the therapy and monitoring amyloid transthyretin amyloidosis** *Yukio ANDO* **Case presentation and an overview of genotypic and phenotypic diversity of hereditary transthyretin amyloidosis in Hong Kong** *Lok Yee Andrea LEE, Lun Pei NG*	
11:45 – 12:00	**Opening Ceremony** Guest of Honour: *Prof Daniel Tak Mao CHAN* President, Hong Kong College of Physicians	
12:00 – 13:00	**Lunch Symposium - Education Session 1** Chairperson: *Dr Noble KWAN* **Alzheimer's disease, amyloid angiopathy, and the glymphatics** *For Shing LUI*	

9 November 2024, Saturday

13:00 – 13:35

Poster Room
Poster Presentation

Free Paper Presentation

Free Paper Panel Judges: *Dr WK CHENG, Dr Carlin CHANG*

Use of biomarkers to predict disease outcomes in Parkinson's disease

Danise M AU, Hiu Yi WONG, Lily Kwan Wai CHENG, Yee Ling CHENG, Hiu Fan Serene OR, Kin Ying MOK, Fanny Chui Fun IP, Ka Wing Michael SEE, Germaine Hiu Fai CHAN, Tak Lap POON, Nelson Yuk Fai CHEUNG, Amy Kit-yu FU, Nancy Yuk-Yu IP

Repetitive transcranial magnetic stimulation to improve motor function of children with brain injury: a randomised controlled trial

Chai Yin Charlie FAN, Yunxin Avery ZHU, Wai Shing Wilson HO, King Fai Kevin CHENG, Sau Ning Sarah LAU, Wan Yee Winnie TSO

Reperfusion technique selection strategy after failed first-pass in endovascular therapy for acute ischaemic stroke due to anterior circulation large vessel occlusion

KHN FOK, MS CHI, YP FU, KY CHEUNG, J SIU, HY LAU, V CHAN, LY CHAN, BL MAN, CF CHEUNG, LK TSOI, PK CHEUNG, CK YUEN, HY SE, HK CHEUNG, CT YIM, KY LAU

Reduced dose of Galcanezumab is an effective abortive or transitional treatment for cluster headache: a short case series in Hong Kong

Warren Tsz Fung CHEUNG, Raymond Chun Kong CHAN

Poster Presentation

Poster Panel Judges: *Dr Nelson CHEUNG, Dr Colin LUI*

A man with diplopia and a sphenoid-orbital lesion

Edmund CHUI, Ting Hin Adrian HUI

Outcome of rimegepant for migraine patients in a hospital in Hong Kong

Kwok Kwong LAU, Ellen Lok-man YU, German WONG

Prediction of thrombectomy outcomes using perfusion profile of eloquent brain regions: a multicentre study

Haipeng LI, Ho KO, Sangqi PAN, LT LUI, Trista HUNG, Chun Ngo YAU, Edward HUI, Xinyi LENG, Jill M ABRIGO, Bonnie YK LAM, Vincent CT MOK, Rosa HM CHAN, Thomas W LEUNG, Hao WANG, Fengyuan CHE, Bonaventure Y IP

24-hour diastolic blood pressure variability is independently associated with impaired white matter microstructure in middle-aged adults without hypertension

Mandy Yuen-Man CHAN, Bernice LEUNG, Crystal LEE, Preeti Dinesh VIRWANI, Chelsea CW LO, Chelsey CC WONG, Abby YEUNG, Angelina CHENG, Thomas WONG, Wilfred TSE, Kay-Cheong TEO, Kui-Kai LAU

Effects of dynamic handgrip exercises on cerebral blood velocity in symptomatic carotid stenotic and healthy adults: a systematic review

Suet Yee Shirley HUI, Yin Man CHU, Kin Sze Lily WAN

Triple antihypertensive medication prediction score after intracerebral haemorrhage (the TRICH score)

Ching-Hei SO, Charming YEUNG, Ryan HO, Qing-Hua HOU, Christopher SUM, William LEUNG, Yuen-Kwun WONG, LIU KC Roxanna, Hon-Hang KWAN, Joshua FOK, Edwin Kin-Keung YIP, Bun SHENG, Desmond Yat-Hin YAP, Gilberto KK LEUNG, Koon-Ho CHAN, Kui-Kai LAU, Kay-Cheong TEO

Epidemiology of cerebral venous thrombosis in Hong Kong: a territory-wide study

Jeremy Man Ho HUI, Ching Hei SO, Kin San LO, Wai Hang CHAN, Ishita AGARWAL, Margaret Kay HO, Michael TANG, Gary Kui-Kai LAU, Ryan Wui-Hang HO

9 November 2024, Saturday

13:35 – 14:20	**Eisai Dementia Symposium** Chairpersons: *Dr Carlin CHANG, Dr Noble KWAN* **Alzheimer's disease and amyloid-related imaging abnormalities: imaging in the era of disease-modifying therapies** *Tammie BENZINGER*	Poster Room **Poster Presentation**
14:20 – 15:05	**Lundbeck Migraine Symposium** Chairpersons: *Dr Adrian HUI, Dr Carlin CHANG* **Redefining the migraine treatment landscape** *Peter MCALLISTER*	
15:05 – 15:20	Break/Air time	
15:20 – 16:05	**Pfizer Migraine Symposium** Chairpersons: *Dr Yannie SOO, Dr Colin LUI* **Optimising migraine treatment: from acute to prevention** *Stewart J TEPPER*	
16:05 – 16:45	**Teva Migraine Symposium** Chairpersons: *Dr Yannie SOO, Dr Bonaventure IP* **Reshaping migraine prevention management with 5-year experience of calcitonin gene-related peptide–targeting medications** *Sait ASHINA*	

10 November 2024, Sunday

08:30 – 08:45	Registration	Poster Room **Poster Presentation**
08:45 – 09:30	**Movement Disorders Symposium 1** Chairpersons: *Dr Germanine CHAN, Dr Karen MA* **Interesting movement disorders in Asia: approach to phenomenology and diagnosis** *Lingappa Kukkle PRASHANTH*	
09:30 – 10:15	**Movement Disorders Symposium 2** Chairpersons: *Dr Germanine CHAN, Dr Karen MA* **A practical guide to non-invasive brain stimulation for movement disorders** *Robert CHEN*	
10:15 – 10:30	Break/Air time	
10:30 – 11:15	**Roche SMA Symposium** Chairpersons: *Dr Shirley CHEUNG, Dr June WONG* **Spinal muscular atrophy treatment with risdiplam: local experience and ongoing studies overseas** *Sophelia CHAN*	
11:15 – 12:00	**Neuromuscular Diseases Symposium 1** (co-organised with The Hong Kong Society of Neuromuscular Diseases) Chairpersons: *Dr Sophelia CHAN, Dr June WONG* **Experience in managing adults with Duchenne muscular dystrophy and steroid use** *Rosaline QUINLIVAN*	
12:00 – 12:45	**Neuromuscular Diseases Symposium 2** (co-organised with The Hong Kong Society of Neuromuscular Diseases) Chairpersons: *Dr Sophelia CHAN, Dr June WONG* **Latest development in diagnosis, treatment, and clinical trials for neuromuscular diseases in the mainland of China** *Yi DAI*	
12:45 – 13:30	**Lunch Symposium: Education Session 2** Chairperson: *Dr KL SHIU* **Challenging cases of neuro-Behçet's disease** *SH NG, Shirley CHEUNG*	
13:30 – 13:35	Break/Air time	
13:35 – 14:20	**UCB Epilepsy Symposium** Chairpersons: *Dr Noble KWAN, Dr Adrian HUI* **Seizure semiology and localisation** *Vicente VILLANUEVA*	

10 November 2024, Sunday

14:20 – 15:05	**Epilepsy Symposium** Chairpersons: *Dr Noble KWAN, Dr Adrian HUI* **Diagnosis and management of status epilepticus** *Farzad MOIEN-AFSHARI*	Poster Room **Poster Presentation**
15:05 – 15:20	Break/Air time	
15:20 – 16:05	**Neuroimmunology Symposium** (co-organised with Hong Kong Neuroimmunology Society) Chairpersons: *Dr WT WONG, Dr Jacky LEE* **Neuroimmunological aspects and complications of COVID-19** *Benedict D MICHAEL*	
16:05 – 16:15	Closing Ceremony	

DH 1

Timing to start anticoagulants after acute ischaemic stroke in patients with non-valvular atrial fibrillation

Ganhui Emma CAI
Department of Medicine, North District Hospital, Hong Kong SAR, China

Background: The optimal timing to start anticoagulation after acute ischaemic stroke (AIS) in patients with non-valvular atrial fibrillation remains uncertain.
Methods: This study retrospectively recruited 498 patients with AIS or transient ischaemic attack (TIA) and non-valvular atrial fibrillation from two regional hospitals. Patients were stratified into early (0-7 days, n=363) or later (>7 days, n=135) group based on the timing of anticoagulants initiation. The primary outcomes were the composite events of recurrent AIS/TIA and symptomatic intracranial haemorrhage (sICH) at 30 and 90 days after index stroke. Secondary outcomes included recurrent ischaemic event (AIS/TIA or sICH) at 30 and 90 days.
Results: More patients in the later than early group had composite events of recurrent AIS/TIA and sICH at 30 days (8.1% vs 2.8%, adjusted odds ratio [OR]=0.34, 95% confidence interval [CI]=0.11-1.10) and at 90 days (9.6% vs 4.7%, adjusted OR=0.30, 95% CI=0.18-1.12), as well as recurrent ischaemic event at 30 days (8.1% vs 2.2%, adjusted OR=0.22, 95% CI=0.06-0.86) and at 90 days (8.9% vs 3.3%, adjusted OR=0.30, 95% CI=0.11-0.88). Nonetheless, the rate of sICH was similar between the early and the later groups at 30 days (0.6% vs 0%) and at 90 days (1.4% vs 0.7%).
Conclusion: Compared with initiating anticoagulants after 7 days of AIS, initiating anticoagulants within 7 days of AIS results in lower rates of recurrent ischaemic event at 30 and 90 days, without significantly increasing the risk of sICH.

DH 2

Clinical course of mitochondrial disease with m.3243A>G variant in MT-TL1 gene in Hong Kong

Yat Kwan CHAN
Department of Medicine and Geriatrics, Princess Margaret Hospital, Hong Kong SAR, China

Background: The m.3243A>G variant in the MT-TL1 gene is the most common mitochondrial mutation in humans. This mutation is typically associated with mitochondrial encephalomyopathy with lactic acidosis and stroke-like episodes (commonly known as MELAS) and maternally inherited diabetes and deafness (commonly known as MIDD) syndrome, manifests in high clinical heterogeneity, and carries variable prognosis. We aim to analyse the clinical course, neuroimaging features, and treatments among symptomatic patients with the m.3243A>G variant in Hong Kong.
Methods: We conducted a retrospective review of patients with genetically confirmed m.3243A>G variant who were identified from the Mitochondrial Disease Registry in Hong Kong and the Princess Margaret Hospital database. Data on clinical course, neuroimaging findings and treatments were retrieved. Comparison was made between the adult-onset form and the juvenile-onset form.
Results: In total, 26 patients with adult-onset form and 24 patients with juvenile-onset form were included. The overall median survival was 50 years. Patients with juvenile-onset form had significantly shorter survival. MELAS was the most common phenotype, and 20% was non-syndromic. Seizure, headache, and developmental problems were significantly more frequent in patients with juvenile-onset form, whereas diabetes mellitus, hearing impairment, and psychiatric presentations were significantly more frequent in patients with adult-onset form. Acute neurological presentation with stroke-like episode occurred in 32 patients; most of them had multi-lobar involvement in neuroimaging. Evidenced-based prevention therapy with arginine, citrulline, or taurine were prescribed in 66% of patients after stroke-like episodes. Among 27 patients who had died, 37% had sudden unexplained death.
Conclusion: Patients with m.3243A>G variant present with a wide clinical spectrum of disease. The disease is often severe and results in death. Multidisciplinary approach and individualised treatment are required for more effective management.

Neurosyphilis: 10-year case series and analysis of correlation of serum and cerebrospinal fluid titre

DH 3

Chi Hou Samuel HUI
Department of Medicine and Geriatrics, Kwong Wah Hospital, Hong Kong SAR, China

Background: Neurosyphilis is severe infection of the nervous system caused by *Treponema pallidum*. The worldwide incidence of neurosyphilis has been increasing. Repeated cerebrospinal fluid (CSF) examination is required for diagnosing and monitoring the disease. Serological response can act as a surrogate to monitor treatment response. This study aimed to review cases of neurosyphilis in two regional hospitals in Hong Kong across 10 years.
Methods: Records of patients aged ≥18 years who were diagnosed with neurosyphilis in Kwong Wah Hospital or Queen Elizabeth Hospital between August 2012 and July 2022 were retrospectively reviewed. Data on the epidemiology, clinical presentation, radiological findings, electrophysiological findings, diagnosis, and management were retrieved. Correlations between serum serology, CSF titre, CSF findings, clinical presentation, and treatment outcome were evaluated, as was the possibility of using serum non-treponemal titre as a less invasive method of monitoring.
Results: In total, 125 patients (median age, 50 years) were included; 89.6% of patients were male. The annual incidence of neurosyphilis was 1.08 per 100 000 persons. HIV status was positive in 44% of patients. The most common presentation was asymptomatic neurosyphilis (36%), followed by general paresis (22%) and ocular syphilis (20%). Acute syphilitic meningoencephalitis was observed in 11% of subjects. The median CSF venereal disease research laboratory (VDRL) titre was 1:4. The most used treatment was intravenous penicillin G, followed by intravenous ceftriaxone. The success rates of both treatment regimens were comparable. Changes in serum VDRL titre on follow-up were positively correlated with changes in CSF VDRL titre. Normalisation of serum VDRL titre predicted normalisation of CSF VDRL titre in 85.2% of patients at 24 months and 86.7% of patients at 36 months.
Conclusion: Findings of this study in Hong Kong largely correlate with those in other parts of the world. Larger studies to evaluate the accuracy of alternative diagnostic methods, the effectiveness of alternative treatment regimens, and the use of serum non-treponemal titre as a surrogate to monitor treatment response are needed.

Predictive risk factors for severe relapsing neuromyelitis optica spectrum disorders: a single-centre retrospective cohort study

DH 4

Jingliang Tommy TANG
Department of Medicine and Geriatrics, United Christian Hospital, Hong Kong SAR, China

Background: Neuromyelitis optica spectrum disorder (NMOSD) is a rare autoimmune disease in the central nervous system. Since the discovery of serum antibody that targets the water channel aquaporin-4, NMOSD has been recognised as an autoimmune astrocytopathy, which is distinct from multiple sclerosis. This study aimed to review records of patients with NMOSD to determine factors associated with high relapse risk.
Methods: Records of patients with a diagnosis of NMOSD were retrospectively reviewed. Patients were divided into two groups: non-severe relapsing group and severe relapsing group. The two groups were compared in terms of demographic features, clinical presentation, laboratory and magnetic resonance imaging features, and treatment.
Results: In total, 34 patients in the non-severe relapsing group and 40 patients in the severe relapsing group were included. Severe relapsing NMOSD was associated with late-onset NMOSD, other coexisting autoimmune diseases or positive autoimmune Ab, a higher cerebrospinal fluid immunoglobulin G level, and ≥5 vertebral segments involvement.
Conclusions: Patients with severe relapsing NMOSD should be identified and treated more aggressively with newly approved therapies.

DH 5

Comparative effectiveness and safety of four second-line antiepileptic drugs as adjunctive treatment in adults: a three-year retrospective cohort

Man Sin WONG
Department of Medicine, Queen Elizabeth Hospital, Hong Kong SAR, China

Background: Perampanel (PER), Lacosamide (LCM), Topiramate (TPM), and Levetiracetam (LEV) are pharmacological antiepileptic drugs for second-line management of epilepsy. There are limited data on the effectiveness and safety of PER and LCM in clinical settings, particularly in Asian patients. We therefore retrospectively evaluated the effectiveness, safety, and tolerance of the four antiepileptic drugs in the neurology clinic of Queen Elizabeth Hospital.
Methods: Medical records of 200 patients who were newly administered PER, LCM, TPM, or LEV as add-on therapy were retrospectively reviewed. Outcome measures included the responder rates at 50% and 75% of seizure reduction, the achievement of seizure freedom, the retention rate, and the occurrence of adverse events (AEs) at 3, 6, 12, 18, 24, and 36 months follow-up visits.
Results: Regarding efficacy, the rates of >50% seizure responder ranged from 12.2% to 36.3% for PER, 38.7% to 71.4% for LCM, 30.3% to 60.8% for TPM, and 71.1% to 89.3% for LEV. The rates of being free from seizures ranged from 0% to 6.4% for PER, 9.7% to 25.7% for LCM, 18.2% to 34.8% for TPM, and 37.8% to 58.3% for LEV. Regarding tolerance, TPM showed the lowest retention rate (but not significantly). Six, four, seven, and six patients discontinued the treatment of LCM, PER, TPM, and LEV, respectively. AEs were the predominant factor leading to the cessation of medication. The most frequent AEs were tiredness and weight gain for PER (affecting five of 18 patients with AEs), dizziness for LCM (affecting three of 12 patients with AEs), slow movement for TPM (affecting four of 15 patients with AEs), and mood problems for LEV (affecting five of 12 patients with AEs).
Conclusions: LEV and LCM demonstrated greater rates of seizure response and seizure freedom. PER was inferior in efficacy but might be confounded by the factor that the PER group comprised patients who were most drug resistant at baseline. The four antiepileptic drugs demonstrated comparable tolerability, although TPM appeared less tolerated.

S 1

Stroke Symposium (co-organised with Hong Kong Stroke Society)
Advances to improve outcome after recanalisation therapy with cerebroprotective agents

Natan BORNSTEIN
Sackler Faculty of Medicine, Tel-Aviv University, Israel

The introduction of intravenous thrombolysis and endovascular thrombectomy has ushered in a new era in the treatment for acute ischaemic stroke (AIS). However, current reperfusion therapies are associated with incomplete or delayed recanalisation, haemorrhagic transformation, and reperfusion injury. Furthermore, about 50% of patients with AIS treated with intravenous thrombolysis and endovascular thrombectomy do not achieve a favourable outcome, and the treatment of AIS in the posterior circulation or large core strokes are even less successful. Recanalisation efficacy when achieved within first 3 hours of stroke onset is limited to only 35% of major strokes. Therefore, examining and addressing all potential reperfusion therapy pitfalls can improve AIS outcomes. Effective cytoprotection administered to patients with AIS who achieve early recanalisation may improve clinical outcome by promoting reperfusion and by protecting cells and the blood brain barrier, and/or reducing the consequences of reperfusion damage. Additionally, effective management should target on enhancing collateral circulation, preventing the no-reflow phenomena, improving downstream microcirculation, and reducing haemorrhagic transformation after AIS. I review the preclinical and clinical data and particularly the role of Cerebrolysin as a multi-modal cytoprotective add-on therapy to AIS recanalisation therapy. Additionally, I introduce a series of concept studies including the one in my own centre in Tele Aviv. I emphasise the need to clearly define the patient population that benefits most from effective cytoprotection as add-on to reperfusion therapy in AIS. The results will support appropriate patient selection for large-scale randomised controlled trials in the future.

S 2

Medison Rare Disease Symposium

New direction in the therapy and monitoring amyloid transthyretin amyloidosis

Yukio ANDO
Sugimurakai Medical Association, Sugimura Hospital, Japan
Amyloidosis Diagnosis and Research Supporting Center, Japan

Transthyretin (TTR) is a 55 kDa homotetrameric protein composed of 127-residue b-sheet-rich subunits found mainly in the serum, cerebrospinal fluid, and aqueous fluid. The main function of TTR involves the transport of thyroxine and vitamin A-retinol binding protein complexes. Almost all serum TTR is synthesised in and secreted by the liver. The protein is also synthesised in the choroid plexus and the retinal pigment epithelium. TTR synthesised by host tissues forms amyloid fibrils because of genetic mutation or conformational change of the protein. Amyloid transthyretin (ATTR) amyloidosis is a progressive and systemic disease. The disease is divided into either hereditary (ATTRv) or sporadic (ATTRwt). Main clinical manifestations of ATTRv amyloidosis are polyneuropathy, cardiac and renal failures, gastrointestinal and autonomic disorders, and ocular complications, whereas those of ATTRwt amyloidosis are cardiac failure, orthopaedic-related disorders, and small fibre neuropathy. The recent approval of three drugs for the treatment of ATTR amyloidosis, both ATTRv and ATTRwt, has opened a new era in the care of these diseases. ATTR amyloidosis is embedded in its pathophysiology, and the drugs target critical steps of the amyloid cascade. In addition to liver transplant, which removes the pathogenic variants, the introduction of gene silencers has allowed the suppression of both wild type and mutant TTR, thus extending the potential therapeutic range to both types of ATTR amyloidosis. The kinetic stabilisation of TTR using small molecules has proved to be clinically effective for both amyloid neuropathy and cardiomyopathy. Indications for liver transplantation have narrowed considerably. In my presentation, guidelines for therapy are proposed based on expert consensus, acknowledging that gene silencers will probably change the therapeutic armamentarium and, consequently, the therapeutic strategy in the near future. Indications for monitoring disease progression and drug efficacy are also provided for the management of these complexes but now very treatable diseases.

S 3

Medison Rare Disease Symposium

Case presentation and an overview of genotypic and phenotypic diversity of hereditary transthyretin amyloidosis in Hong Kong

Lok Yee Andrea LEE, Lun Pei NG

Hereditary transthyretin (ATTRv) amyloidosis can manifest with polyneuropathy, restrictive cardiomyopathy, or less commonly leptomeningeal amyloidosis. Current understanding on ATTRv amyloidosis is largely derived from the experiences in endemic countries where the prevalent pathological variant p.Val50Met accounts for over 80%, with a younger onset, slowly progressive neuropathy being the typical phenotype. We have previously shared our own experience on patients with ATTRv amyloidosis being referred to our designated treatment centre. We found that the regional founder variant p.Ala117Ser was the most common mutation in our patients who usually present at middle age with prominent cardiomyopathy. Nonetheless, some variant could behave aggressively with an early symptom onset and rapidly progressive clinical course. In this talk, we will discuss on the genotypic and phenotypic diversity of ATTRv amyloidosis in Hong Kong, as well as the disease impact and clinical management in ATTRv amyloidosis through an illustrative case.

S 4

Eisai Dementia Symposium

Alzheimer's disease and amyloid-related imaging abnormalities: imaging in the era of disease-modifying therapies

Tammie BENZINGER
Washington University School of Medicine in St Louis, United States
Mallinckrodt Institute of Radiology St Louis, and Barnes-Jewish Hospital, United States

The clinical approvals of disease-modifying monoclonal antibody therapies for Alzheimer's disease have rapidly changed the landscape for patients and families with the disease. Two anti-amyloid monoclonal antibody therapies are approved by the United Stated Food and Drug Administration for clinical use in early symptomatic Alzheimer's disease. However, both disease-modifying therapies may induce amyloid-related imaging abnormalities, which are magnetic resonance imaging findings of oedema, sulcal effusions, microhaemorrhages, and superficial siderosis. These are usually asymptomatic and reversible if infusion doses are held, and the patient is carefully monitored. However, in rare cases, these can progress to complications that may include stroke-like symptoms, seizures, hospitalisation, or death. Implementation of collaborative, multidisciplinary care among neurology, geriatrics, radiology, and emergency medicine is recommended in order to provide safe and effective treatment. This presentation will provide updates from clinical trials, recent practice guidelines and white papers from the American Academy of Neurology and the American Society for Neuroradiology, and the experience of the Washington University, which has over 180 patients undergoing treatment with lecanemab.

S 5

Lundbeck Migraine Symposium

Redefining the migraine treatment landscape

Peter MCALLISTER
New England Institute for Neurology and Headache, Stamford, Connecticut, Untied States
New England Institute for Clinical Research and Ki Clinical Research, Stamford, Connecticut, Untied States

Migraine is a debilitating neurological condition that affects millions of people worldwide. The recent development of calcitonin gene-related peptide (CGRP)–targeted treatments has revolutionised the management of migraine. Among the anti-CGRP antibodies, eptinezumab is a humanised monoclonal antibody selectively and specifically designed to be administered through intravenous infusion to provide efficacious, fast, and sustained preventive migraine treatment. Real-world data have shown the effectiveness of intravenous eptinezumab in patients with chronic migraine who were previously treated with subcutaneous preventive migraine therapies. Regardless of the type of anti-CGRP monoclonal antibody used, the patient-reported number of 'good' days per month was more than double following eptinezumab treatment. Could switching from other anti-CGRP treatments to eptinezumab further improve the well-being of patients with migraine? In this lecture, the speaker will attempt to differentiate eptinezumab from the other CGRP-targeted treatments, enabling the development of tailored treatment strategies for managing migraine.

S 6

Pfizer Migraine Symposium
Optimising migraine treatment: from acute to prevention

Stewart J TEPPER
Geisel School of Medicine at Dartmouth, Hanover, New Hampshire, United States

Migraine is a prevalent neurological disorder that significantly impacts quality of life. Effective acute and preventive treatment strategies can reduce the frequency and severity of migraine attack. This presentation explores the evidence-based practices of novel calcitonin gene-related peptide (CGRP)–targeting therapies, and how it has revolutionised migraine management. Clinical trials have shown that CGRP-targeting therapies provide early and sustained relief, which is also reflected in real-world data. Long-term safety data have also demonstrated that these treatments are generally well-tolerated, with a favourable safety profile. Prioritising safety can minimise potential adverse effects and ensure that patients can benefit from these innovative therapies without compromising their overall health. By effectively managing acute migraine episodes and preventing medication overuse, CGRP-targeting treatments may play a role in reducing the risk of progression to more frequent and severe migraines, thereby improving long-term patient outcomes. The implications of integrating preventive treatments alongside acute treatments in the clinical settings are discussed. By balancing efficacy and safety, healthcare providers can offer more effective and sustainable migraine management solutions, ultimately improving the quality of life for individuals with migraines.

S 7

Teva Migraine Symposium
Reshaping migraine prevention management with 5-year experience of calcitonin gene-related peptide–targeting medications

Sait ASHINA
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Calcitonin gene-related peptide (CGRP) is a key molecule involved in the pathophysiology of migraine, playing a pivotal role in trigeminal pain transmission associated with migraine headaches. Anti-CGRP therapies have demonstrated effectiveness in migraine prevention in placebo-controlled randomised trials. Currently, they are considered the first-line option for migraine prevention in both the United States and the European Union. Despite initial assumptions in clinical settings, post-marketing data have suggested meaningful differences between treatments targeting the CGRP ligand versus the receptor. This variation in mechanism of action may account for differences in efficacy and safety profiles, raising concerns about adverse events such as constipation and hypertension with receptor-targeting treatments. CGRP pathway monoclonal antibodies have been extensively studied, and their efficacy and safety have been confirmed, including in special populations, through post-marketing and real-world data.

S 8

Movement Disorders Symposium 1
Interesting movement disorders in Asia: approach to phenomenology and diagnosis

Lingappa Kukkle PRASHANTH
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Movement disorders in Asia exhibit a unique interplay of genetic, environmental, and cultural factors, and thus their diverse phenomenology and prevalence. Notably, Wilson's disease, spinocerebellar ataxias (SCA-12, SCA-31, SCA-36), PLA2G6-related parkinsonism, and adult-onset neuronal intranuclear inclusion disease are associated with NOTCH2NLC gene mutations and X-linked dystonia-parkinsonism and highlight the region's genetic predispositions. Genetic studies have identified specific mutations prevalent in Asian populations, emphasising the importance of targeted genetic screening and personalised medical approaches. Environmental influences are also significant, as illustrated by Minamata disease caused by industrial mercury poisoning in Japan, β-fluoroethyl acetate-associated cerebellar degeneration in Korea, and iatrogenic Creutzfeldt-Jakob disease in Japan linked to cadaveric dura mater grafts. Dietary practices, such as those leading to infantile tremor syndrome in India due to vitamin B12 deficiency, further underscore the role of nutrition in the manifestation of these disorders. Additionally, culturally specific conditions such as Latah syndrome in Southeast Asia reflect the impact of socio-cultural dynamics. The rich history of movement disorders in Asia includes numerous first descriptions and evolutions of various conditions. Disorders such as Segawa disease, X-linked dystonia-parkinsonism, and dentatorubral-pallidoluysian atrophy were first identified in Asia, contributing to the global understanding of these conditions. Effective diagnosis and management require a comprehensive understanding of these multifaceted aetiologies. Genetic testing, environmental risk assessments, and culturally sensitive approaches are essential in formulating accurate diagnoses and therapeutic strategies. Collaborative research efforts across Asian countries continue to enhance the understanding of these disorders, aiming to improve clinical outcomes through tailored interventions. This presentation underscores the necessity for an integrated approach that considers genetic, environmental, and cultural factors in diagnosing and managing movement disorders prevalent in Asia.

S 9

Movement Disorders Symposium 2
A practical guide to non-invasive brain stimulation for movement disorders

Robert CHEN
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Repetitive transcranial magnetic stimulation (rTMS) is the most studied non-invasive brain stimulation (NIBS) method for treatment of movement disorders. Meta-analyses suggested that rTMS is a useful adjunctive treatment for Parkinson's disease (PD). Bilateral high frequency rTMS to motor cortical regions can improve motor symptoms. Other symptoms that can be targeted include levodopa-induced dyskinesia, freezing of gait, and depression. In dystonia, inhibitory protocols targeting the premotor or motor cortices have shown promising results. However, further studies are needed to fully establish efficacy and define the optimal parameters for rTMS in movement disorders. Results of transcranial direct current stimulation in combination with rehabilitation in PD are variable. Transcranial alternating stimulation applied to the cerebellum time locked to phases of essential tremor can reduce tremor amplitude. Low-intensity transcranial ultrasound stimulation (TUS) is a novel NIBS method that is more focal and can reach deep brain structures, compared to established methods such as rTMS or transcranial direct current stimulation. TUS can induce cortical plasticity and have shown promising results in pilot studies in PD. TUS is used as non-invasive deep brain stimulation of the subthalamic nucleus, the internal globus pallidus, and/or the cerebellum for treatment of PD and other movement disorders. Transcranial electrical temporal interference (tTIS) stimulation is another novel NIBS approach for stimulating deep brain structures that can be used in PD and other movement disorders. tTIS applied to the striatum can increase focal activities measured by functional magnetic resonance imaging and improve motor learning skills. tTIS of the hippocampus can modulate hippocampal activities and enhance the accuracy of episodic memory. NIBS for movement disorders is a rapidly advancing field, and we can expect further studies in the near future to define its role in the management of movement disorders.

S 10

Roche SMA Symposium

Spinal muscular atrophy treatment with risdiplam: local experience and ongoing studies overseas

Sophelia CHAN
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Patients with spinal muscular atrophy have insufficient levels of survival motor neuron (SMN) protein due to a defect in both SMN1 and SMN2 genes. Although the SMN2 gene can produce some SMN protein, it fails to yield the quantity necessary for maintaining adequate muscle function. Risdiplam, the first oral treatment for spinal muscular atrophy, addresses this by targeting SMN2 to boost the production of functional SMN protein. This presentation will discuss the outcomes of both paediatric and adult patients in Hong Kong after oral risdiplam treatment. Additionally, I will share real-world data from international studies.

S 11

Neuromuscular Diseases Symposium 1 (co-organised with The Hong Kong Society of Neuromuscular Diseases)

Experience in managing adults with Duchenne muscular dystrophy and steroid use

Rosaline QUINLIVAN
Department of Neuromuscular Diseases, University College London, MRC Centre for Neuromuscular Disease, London, United Kingdom

The outlook for young people with Duchenne muscular dystrophy (DMD) has improved dramatically due to the publication of international standards of care and the introduction of corticosteroid treatment, which delays the loss of independent ambulation. As a consequence, many more young men are transitioning to adult services. The median age of death has increased to around 28 years, with many men surviving into the third and fourth decades. Thus, there are needs to ensure that men with DMD are better prepared for this transition to adulthood. Furthermore, adult services may need to be reorganised so that complex care can continue to be delivered in a co-ordinated fashion. Adults with DMD are a heterogeneous group of patients. Some are steroid naïve; some will have stopped steroids at some point after loss of ambulation due to adverse effects; and others continue steroid treatment into adulthood. The benefits of continuing steroids have been hitherto unclear; there is a lack of consensus for continuing steroids in adults with DMD amongst neurologists. I will present data from a cohort of 190 adults with DMD and compare the outcomes for each of these groups (steroid naïve, steroid stopped, and steroid continued). The age at first use of non-invasive ventilation is the primary end point.

S 12

Neuromuscular Diseases Symposium 2 (co-organised with The Hong Kong Society of Neuromuscular Diseases)

Latest development in diagnosis, treatment, and clinical trials for neuromuscular diseases in the mainland of China

Yi DAI
Department of Neurology, Peking Union Medical College Hospital, China

This talk will discuss the progress in diagnosis and treatment of neuromuscular diseases as well as new drug development and clinical trials in Mainland China, highlighting China's participation in international cooperation and independent research and development in relevant fields. This talk will cover a variety of neuromuscular diseases, including Duchenne muscular dystrophy, spinal muscular atrophy, facioscapulohumeral muscular dystrophy, amyotrophic lateral sclerosis, limb girdle muscular dystrophy, myasthenia gravis, and so on.

S 13

UCB Epilepsy Symposium

Seizure semiology and localisation

Vicente VILLANUEVA
University Hospital La Fe, Valencia, Spain

Clinical semiology interpretation is essential in the localisation and lateralisation of seizures. Frontal lobe seizures are usually characterised by its motor component, brief duration, and sleep predominance, whereas in temporal lobe seizures, oral automatisms, autonomic features, and lack of response for a longer period are paramount. Insular or posterior quadrant seizures (parietal and occipital) reveal a myriad of symptomatology based on the complexity of propagation. Ictal semiology information is crucial in planning epilepsy surgery, particularly in non-lesional cases in which stereoelectroencephalography is used. The agreement of neuroimaging with semiology and scalp electroencephalography information is not always warranted, and invasive studies are delineated based on the available information. Frequently, in these patients, ictal semiology can be the most reliable information for a successful epilepsy surgery. A few cases will be presented to discuss semiology and the final surgical approach.

S 14

Epilepsy Symposium
Diagnosis and management of status epilepticus

Farzad MOIEN-AFSHARI
University of British Columbia, Vancouver Costal Health, Vancouver, British Columbia, Canada

The objectives of the lecture are to define status epilepticus (SE) and discuss its classification, compare convulsive with non-convulsive SE, compare refractory with super refractory SE, compare new-onset refractory status epilepticus with febrile infection-related epilepsy syndrome, review the epidemiology of SE, review various aetiologies of SE, discuss the pathophysiology of seizure sustainability and refractoriness, review a few clinical signs of non-convulsive SE, review a few cases of super refractory SE, describe diagnostic methods used in confirming SE and identifying aetiologies, and discuss treatment strategies for SE by comparing various antiseizure medications and strategies used in the cases presented.

S 15

Neuroimmunology Symposium (co-organised with Hong Kong Neuroimmunology Society)
Neuroimmunological aspects and complications of COVID-19

Benedict D MICHAEL
Institute of Infection, Veterinary and Ecological Sciences, University of Liverpool, United Kingdom
The Walton Centre NHS Foundation Trust, United Kingdom

This lecture will present the lasting impacts of neurological complications of COVID-19, the associated neurological and immune processes, and how murine models can better determine the mechanistic processes underlying the para-infectious impact of COVID-19 on the brain. The pandemic has resulted in immeasurable human suffering. If there can be any silver lining, it is undoubtably that the pandemic represents humanity's first chance to understand the impact of COVID-19 infection on the brain, not just clinically, but also at immunological, virologic, genetic, and neuroimaging levels. This is not humanity's first pandemic, and it will not be our last. The lessons we learn from this are pivotal in our capacity to face the next.

Alzheimer's disease, amyloid angiopathy, and the glymphatics

ES 1

For Shing LUI
Expert Consultant in Neurology, Medical Board of California, United States of America

Alzheimer's disease (AD), the most common form of dementia, is characterised pathologically by abnormal accumulation of amyloid β (Aβ) and phosphorylated tau. The accumulation of the toxic form of Aβ, especially the Aβ42 isoform, is the most important initiating event for the development of AD pathology, typically occurring more than 10 years prior to the onset of cognitive impairment. Aβ accumulation in the brain is also the pathological hallmark of AD. Cerebral amyloid angiopathy is defined pathologically by accumulation of Aβ in the walls of cerebral blood vessels, which can be visualised radiologically by the presence of microhaemorrhages in susceptibility-weighted magnetic resonance imaging. The increased synthesis of Aβ is widely recognised, whereas the recent discovery of the glymphatics as a clearance system offers an alternative explanation for the accumulation of Aβ in the brain parenchyma and cerebral blood vessels. My review highlights the relative importance of the biosynthesis and the clearance of Aβ in the pathology, early diagnosis, and understanding of AD and cerebral amyloid angiopathy pathogenesis.

Challenging cases of neuro-Behçet's disease

ES 2

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Behçet's disease is a multi-system inflammatory disease of uncertain aetiology with clinical features characterised by recurrent oral and genital ulcers, uveitis, and skin lesions. Diagnosing neuro-Behçet's disease is difficult in patients without known history of Behçet's disease. Delayed diagnoses greatly affect the outcome and prognosis. We present four local cases to illustrate: (1) gastrointestinal ulcers and rhombencephalitis presentation, (2) tumour-like presentation, (3) tumour-like and encephalopathy with diabetes insipidus presentation, and (4) lingual tremor/seizure and complex partial seizure presentation. Histopathology plays a vital part in confirming diagnosis in these cases. Fever and epilepsy should also be considered as possible presenting features. Infliximab appears to be a promising first-line therapy for neuro-Behçet's disease. The presentation will conclude with presentation of unusual clinical images of two illnesses for the first time in the world platform.

Use of biomarkers to predict disease outcomes in Parkinson's disease

FP 1

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Background: Parkinson's disease (PD) is the second most common neurodegenerative disease worldwide. Over 80% of patients develop PD dementia 20 years after diagnosis.

Methods: This is a cross-sectional study of PD patients from Queen Elizabeth Hospital between October 2020 and August 2024. Patients' motor symptoms, non-motor symptoms, quality of life, and plasma biomarker levels were studied.

Results: 122 patients with PD were recruited, with a median age of 67 (interquartile range [IQR]=63-72) years, a median age of onset of 59 (IQR=52.3-63) years, and a median disease duration of 9 (IQR=6-12) years. The median Hoehn and Yahr (H&Y) stage was 2.5 (IQR=2-2.5), and the median Montreal Cognitive Assessment (MoCA) score was 27 (IQR=24-29), with 14 individuals scoring ≤21. Of the 15 patients who underwent deep brain stimulation (DBS), five received treatment before recruitment (post-DBS) and 10 after recruitment (pre-DBS). Compared with patients with a MoCA score of ≥22, those with a MoCA score of ≤21 were older, less educated, and had later disease onset, worse H&Y staging, higher levels of neurofilament light chain (NfL) [which indicates neurodegeneration], and higher levels of glial fibrillary acidic protein (which indicates astrocytic activation). After adjusting for age, sex, and education level, higher MoCA scores were associated with better Schwab and England Activities of Daily Living scores and lower NfL levels. Notably, MoCA scores of pre-DBS patients were similar to those of non-DBS patients but were improved in post-DBS patients. Higher levodopa equivalent dosage was associated with more severe disease (symptoms, functioning, quality of life), earlier onset, and longer duration of disease, but not with cognition. Lower NfL levels were associated with better scores in Movement Disorder Society sponsored revision of the Unified Parkinson's Disease Rating Scale parts I to III and H&Y staging.

Conclusion: Cognition in PD may be associated with levels of function and biomarkers NfL and glial fibrillary acidic protein. Blood biomarker analysis suggests that NfL levels may additionally reflect disease severity. Larger studies with cognitively impaired PD patients are needed for further analysis and stratification.

FP 2

Repetitive transcranial magnetic stimulation to improve motor function of children with brain injury: a randomised controlled trial

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Objective: This study aims to evaluate the effectiveness of combining repetitive transcranial magnetic stimulation (rTMS) with biomechanical-facilitated motor learning exercises to improve the motor function of children with brain injury.
Methods: This was a double-blind, sham-controlled, randomised controlled trial. 10 children with a history of brain injury were randomised to receive 10 days of either sham or active rTMS followed by biomechanical-facilitated motor learning exercises. Outcome was assessed using the Bruininks-Oseretsky Test of Motor Proficiency Second Edition at day 10 of intervention.
Results: The 10 children were randomised to either the intervention group (n=6, median age, 12.6 years) or the control group (n=4, median age, 13.4 years). At day 10, the increase in total motor composite was significantly higher in the intervention group than in the control group (P=0.031). There were significant differences between the two groups in terms of total motor proficiency (F=24.666, P=0.001), specifically in domains of balance (F=7.080, P=0.029), running speed and agility (F=12.925, P=0.007), upper limb coordination (F=14.506, P=0.005), and strength (F=25.504, P<0.001).
Conclusion: The combination of rTMS and motor learning exercises, rather than motor learning exercises alone, significantly improved the motor performance of children with brain injury.

FP 3

Reperfusion technique selection strategy after failed first-pass in endovascular therapy for acute ischaemic stroke due to anterior circulation large vessel occlusion

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Background: Complete or near-complete recanalisation of an occluded vessel upon the first endovascular thrombectomy device pass is associated with favourable clinical outcomes after acute ischaemic stroke. However, this first-pass effect is not achieved in most patients, and thus more than one retrieval attempt is needed to achieve reperfusion. Different techniques, namely contact aspiration, stent retriever, and combined technique, have been used for recanalisation. An increasing number of retrieval attempts is associated with progressively poorer clinical outcome. We aim to assess the effects of technique selection on successful second-pass recanalisation in patients who failed the first-pass.
Methods: In this observational cohort study, records of 510 patients from the endovascular thrombectomy registry of a single centre between November 2009 and March 2024 were analysed. Patients with anterior circulation large-vessel occlusion due to large vessel disease and thromboembolism who failed to achieve first-pass recanalisation were included. Patients with ischaemic stroke aetiologies secondary to infective endocarditis, stent thrombosis, or as a complication of cerebral vascular intervention were excluded. Successful reperfusion was defined as a thrombolysis in cerebral infarction score of 2b or 3. The primary outcome was the successful reperfusion on the second-pass. Multivariate logistic regression models were used to determine the effect of technique selection on the primary outcome.
Results: 270 patients were included. Switching from a combined technique to a single technique was associated with greater odds of successful reperfusion on the second-pass, compared with repeating a combined or single technique or switching from a single to combined technique.
Conclusion: The use of a combined technique followed by a single technique is associated with increased odds of successful recanalisation after a failed first-pass.

FP 4

Reduced dose of Galcanezumab is an effective abortive or transitional treatment for cluster headache: a short case series in Hong Kong

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Background: Calcitonin gene-related peptide (CGRP) inhibitors including the CGRP monoclonal antibodies and oral antagonists are effective therapies for migraine. However, studies of CGRP inhibitor on the treatment of cluster headache are sparse. Currently, Galcanezumab is the only CGRP monoclonal antibody approved by the Food and Drug Administration for preventive treatment of episodic cluster headache in adults. The recommended dosage is 300 mg (administered as three consecutive injections of 100 mg each) taken at the start of a cluster headache period and then every month until the end of the cluster headache period. In Hong Kong, Galcanezumab comes in a 120-mg prefilled autoinjector and is prescribed as a self-financed item. Therefore, the use of Galcanezumab is limited by the cost and unavailability of doses of 100 or 300 mg. Furthermore, the conventional oral preventive drugs take time to exert effect, and the transitional treatment such as high-dose steroid and greater occipital nerve blockade are not popular due to the concern of adverse effects. The aim of this study is to examine the short-term outcome of reduced dose of Galcanezumab during a recurrent cluster headache bout.

Methods: We retrospectively reviewed clinical outcomes of patients receiving reduced dose of subcutaneous Galcanezumab injection for the treatment of recurrent cluster headache through the registry of the headache and facial pain clinic of United Christian Hospital in Hong Kong.

Results: Seven Chinese male patients were included who received Galcanezumab 120 mg (n=4) or 240 mg (n=3) either as monotherapy or combination therapy with conventional preventive drugs. The median age of onset was 30 (range, 14-53) years, and the median age at assessment was 55 (range, 32-60) years. All patients had daily pain, with attacks frequency ranging from 1 to 5 per day and duration ranging from 30 to 300 minutes per attack for at least 3 to 9 weeks before treatment. Two patients with Galcanezumab monotherapy went into remission at or within 1 week. Five patients had significant improvement in terms of frequency, pain intensity, duration of each attack, and duration of bout.

Conclusion: Reduced dose of Galcanezumab (120 or 240 mg compared with the original 300 mg) is effective in the treatment of episodic cluster headache, enabling flexibility in prescription. In addition to the approved indication as a preventive treatment, Galcanezumab can also be considered as an abortive therapy or a transitional therapy.

A man with diplopia and a sphenoid-orbital lesion

P 1

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IgG4-related disease is a systemic inflammatory disease with tumefactive lesions. We report a case of IgG4-related sphenoidal lesion presenting as diplopia, which was initially suspected to be a meningioma. A 58-year-old man presented with diplopia but without headache or eye pain. Physical examination showed pupil-involved third nerve palsy with partial ptosis. Computed tomography of the brain showed right temporal hyperdensity, and magnetic resonance imaging of the brain showed a right sphenoid orbital lesion (1.7×2.6×2.3 cm) with invasion of the right cavernous sinus and encasement of right cavernous internal carotid artery. Anterosuperiorly, there was right intraorbital extension through the right superior orbital fissure involving the right inferior rectus extraocular muscle causing thickening. The lesion also extended close to the right orbital apex, touching the right optic canal and the right optic chiasm without definite invasion. Anteroinferiorly, there was extension through the right foramen rotundum involving the right lateral period muscle and the right mastication space. Radiologically, the presence of the dural tail sign was suggestive of meningioma. Right endoscopic trans-orbital tumour removal was performed. The diameter of right and left pupils, respectively, was 4 and 2 mm preoperatively and 3 and 2 mm postoperatively. Initial frozen section of the lesion revealed mucosa-associated lymphoid tissue lymphoma, but later biopsy found more than 100 IgG4+ cells per high power field with some fibrosis. The subsequent serum IgG4 level was also high. Therefore, a definite IgG4-related ophthalmic disease was established. The patient was started on high-dose prednisolone at 0.6 mg/kg/day. This case is an IgG4-related ophthalmic disease presented as diplopia with a sphenoid lesion mimicking meningioma or lymphoma. The diagnosis was confirmed histologically by a high number of IgG4+ cells along with an elevated IgG4 serum level.

Outcome of rimegepant for migraine patients in a hospital in Hong Kong

P 2

Kwok Kwong LAU, Ellen Lok-man YU, German WONG

Background: Up to 12% of the general population in the world have migraine. Treatment of migraine has changed from pain control to early, higher-dose, and adjunctive therapy. Calcitonin gene-related peptide (CGRP) enables preventive treatments. We study the outcome of patients with migraine treated with rimegepant, an oral form CGRP, in a private hospital in Hong Kong.
Methods: Patients with migraine who were treated with rimegepant in the Adventist Hospital were recruited. Outcomes before and after treatment were compared in terms of headache score (out of 10) and frequency of attack (day/week). The study was started from August 2023. Results in last visits were taken as the outcome.
Results: From August 2023 to September 2024, 12 women and five men with migraine aged 20 to 50 (mean, 32.8) years were treated with rimegepant. The median duration of headache was 5 years (interquartile range [IQR]=3-10). Eleven (64.7%) patients had aura. The median number of medications prior to rimegepant treatment was three (IQR=2-4), and the median duration of rimegepant treatment was 2 (IQR=1-2) months. In the last follow-up, all patients had reduction in the median frequency of migraine attack (3 [IQR=2-5] vs 0.5 [IQR=0-1] days; difference= -2.5 (95% confidence interval= -4.75 to -1); P<0.001) and reduction in median pain score (8 [IQR=7-8] vs 3 [IQR=0-4]; difference= -5 (95% confidence interval= -7 to -3.5); P<0.001).
Conclusion: Most patients with migraine report improvement in pain score with less attacks after rimegepant treatment. No patient reports any adverse effect or complication. Rimegepant can lower severity and frequency of migraine attack.

P 3

Prediction of thrombectomy outcomes using perfusion profile of eloquent brain regions: a multicentre study

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Background: Pivotal endovascular thrombectomy (EVT) for acute large vessel occlusion based on ischaemic core and core-penumbra mismatch was suboptimal in predicting EVT outcomes. The perfusion status of eloquent brain regions is hypothesised to be more crucial in post-EVT prognostication. We aimed to determine EVT outcomes in patients with critical hypoperfusion in pre-specified eloquent brain regions.
Methods: In this multicentre retrospective study, we retrieved records of consecutive patients with acute middle cerebral artery or internal carotid artery occlusion who underwent computed tomography (CT) perfusion prior to EVT with successful reperfusion (Modified Thrombolysis in Cerebral Infarction grade 2b) from four hospitals in Hong Kong and Mainland China from January 2020 to August 2023. We automatically generated perfusion profiles for 79 brain regions using a custom-developed pipeline and quantified the infarct core in each brain region. Infarct core involving >10% of the volume of a particular brain region was classified as being involved. We then selected the eloquent brain regions that were associated with poor functional recovery (modified Rankin score of 3-6) using the Lasso regression. We then compared three multivariable logistic regression prediction models by (1) subjecting each eloquent regions as individual predictors selected by the Lasso model, (2) selecting an unweighted eight-point score with same eloquent brain regions model, and (3) determining a weighted score of eight eloquent brain regions with the Lasso coefficient. All prediction models were adjusted for ischaemic core, age, Alberta stroke programme early CT score, collateral score, onset to puncture time, and procedure time.
Results: Among 293 patients with acute large vessel occlusion, 121 (50.6%) had poor functional recovery despite successful EVT. Lasso selection method identified the following eloquent brain regions: basal ganglia, internal capsule, caudate, sensory cortex, middle frontal gyrus, rostral anterior cingulate cortex, anterior cingulate cortical white matter, and lateral orbitofrontal cortical white matter. Compared with the prediction model with the control factors only (area under the receiver operating characteristic curve [AUROC]=0.671), the individual eloquent model (AUROC=0.744, P<0.01) and the weighted eloquent combination model (AUROC=0.726, P=0.019) significantly improved the post-EVT prognostication.
Conclusion: Automated processing of regional brain perfusion parameters is feasible with CT perfusion scans. The predictive model using the eloquent regions significantly improves the prognostic accuracy of successful EVT.

P 4

24-hour diastolic blood pressure variability is independently associated with impaired white matter microstructure in middle-aged adults without hypertension

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Background: Blood pressure variability (BPV) is associated with white matter (WM) loss, reduced brain volume, and dementia. However, whether BPV is similarly associated with impaired WM integrity in normotensive individuals is unknown.
Methods: We recruited 262 community-dwelling middle-aged Chinese without hypertension between 2021 and 2024. All participants received 24-hour ambulatory blood pressure monitoring to determine their mean 24-hour blood pressure (BP) and BPV (which is indicated by coefficient of variation), brain magnetic resonance imaging to assess WM integrity in terms of fractional anisotropy (FA) of 42 WM tracts, fasting blood tests, and arterial stiffness measurement. Among individuals who were normotensive on ambulatory blood pressure monitoring (BP of <130/80 mmHg), the association of BPV with FA was assessed after adjusting for age, sex, education level, body mass index, 24-hour systolic and diastolic BP, fasting glucose, triglycerides, low- and high-density lipoprotein, smoking status, alcohol intake, and mean pulse wave velocity.
Results: Among 152 normotensive participants (65% females; mean age, 54±6 years), their mean 24-hour BP was 115±7/71±6 mmHg, coefficient of variation was 13/18 mmHg, and pulse wave velocity was 13.8±1.8 m/s. After adjusting for covariates, 24-hour diastolic BPV was independently associated with decreased FA in superior longitudinal fasciculus, dorsal cingulum bundle, and frontal aslant tract. Daytime diastolic BPV was independently associated with decreased FA in middle cerebellar peduncle, whilst nighttime diastolic BPV was independently associated with decreased FA in superior longitudinal fasciculus. In univariate analysis, 24-hour systolic BPV was associated with decreased FA in middle longitudinal fasciculus; similarly, daytime systolic BPV was associated with middle cerebellar peduncle, and nighttime systolic BPV with superior longitudinal fasciculus, middle longitudinal fasciculus, and corpus callosum body, but these associations were not significant after multivariate adjustment.
Conclusion: Diastolic BPV is independently associated with impaired microstructure of WM tracts in normotensive participants. Although the bidirectional relationship between WM loss and vascular control cannot be excluded, clinical attention should be given to this subclinical middle-aged population with high diastolic BPV.

P 5

Effects of dynamic handgrip exercises on cerebral blood velocity in symptomatic carotid stenotic and healthy adults: a systematic review

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Background: Cerebral perfusion is paramount for maintaining optimal brain health and cerebral blood flow. Insufficient blood flow can adversely impact cerebral functions in patients with stroke, Alzheimer's disease, or multiple sclerosis. Therefore, promoting efficient cerebral circulation is critically important. Exercise has positive effects on cerebral blood flow, with empirical evidence suggesting improvements in both functional and cognitive outcomes. Older people may be unable to engage in conventional exercise regimens due to physical limitations. Isometric handgrip exercises can reduce blood pressure and heart rate variability. However, the effect of dynamic handgrip exercises, particularly on cerebral blood flow, remains inadequately understood.
Methods: This systematic review aimed to elucidate the effects of dynamic handgrip exercises on cerebral blood velocity. A comprehensive search of studies was conducted in Embase, PubMed, Web of Science, EBSCO, and Scopus from inception to September 2024.
Results: Among 657 studies, nine were ultimately included, encompassing over 173 participants. One study included 25 patients with unilateral symptomatic carotid stenosis, whereas two studies assessed the effects in elderly populations. Dynamic handgrip exercises were shown to enhance cerebral blood flow velocity by 6% to 19%. Specifically, in patients with unilateral symptomatic carotid stenosis, cerebral blood flow increased by 15.8%, whereas in elderly populations cerebral blood flow increased by 14% to 15.8%.
Conclusion: Dynamic handgrip exercises may increase cerebral blood flow; however, further investigation is needed to understand the underlying mechanisms and long-term implications for brain health. The effects of dynamic handgrip exercises can be attributed to vascular and sympathetic responses, in addition to muscle contraction. These results provide valuable insights for future research into suitable exercise modalities for individuals with limited physical abilities.

P 6

Triple antihypertensive medication prediction score after intracerebral haemorrhage (the TRICH score)

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Background: Uncontrolled hypertension is prevalent among intracerebral haemorrhage (ICH) survivors. This heightens the risk of ICH recurrence and stroke, which is highest in the first year after ICH. Prompt blood pressure (BP) lowering can be achieved by prescribing upfront triple antihypertensive medications, as many ICH survivors required ≥3 antihypertensives for BP management. However, this approach is not suitable for those with cerebral amyloid angiopathy (whose elevated admission BP may be due to acute hypertensive response rather than underlying hypertension). Excessive BP lowering in older patients is associated with increased mortality. Hence, we aim to develop the TRICH score to predict the need for ≥3 antihypertensives at 3 months post-ICH.

Methods: We developed the TRICH score based on 462 patients from the University of Hong Kong ICH registry (2011-2022) and validated it in 203 patients from three other local hospitals (2020-2022). Follow-up BP and medication prescriptions at 3 months post-ICH were reviewed. Predictors of the need for ≥3 antihypertensive medications were derived using multivariate logistic regression, and the TRICH score was determined using the β-coefficients.

Results: The nine-point TRICH score (one for age <60 years, one for males, one for a history of ischaemic heart disease, two for admission estimated glomerular filtration rate of <60 mL/min/1.73 m^2, two for admission systolic BP of 190-230 mmHg, and four for >230 mmHg) had a c-statistic of 0.78 (95% confidence interval=0.74-0.83) in the development cohort and 0.76 (95% confidence interval=0.69-0.82) in the validation cohort. A dichotomised score of ≥3 predicted the need for ≥3 antihypertensives, with 0.70 sensitivity and 0.77 specificity. The TRICH score performed better in patients with untreated/uncontrolled hypertension pre-ICH than in patients with controlled hypertension pre-ICH (c-statistic: 0.81 vs 0.73, p=0.033) but did not differ in terms of ICH location.

Conclusion: The TRICH score can be used to identify ICH patients who need ≥3 antihypertensive medications at 3 months post-ICH, with good discrimination ability. Basing on the TRICH score to prescribe upfront triple antihypertensives enables prompt BP control and mitigates risk of overtreatment.

P 7

Epidemiology of cerebral venous thrombosis in Hong Kong: a territory-wide study

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Background: Cerebral venous thrombosis (CVT) is a rare but clinically important cause of stroke. Most epidemiological data were derived from Caucasian populations. The impact of the COVID pandemic on CVT is controversial. We carried out the largest epidemiological study in Hong Kong so far to explore the local incidence and mortality of CVT over the past 15 years.
Methods: Electronic health records were retrieved from the Clinical Data Analysis and Reporting System between 2009 and 2023. CVT cases were identified through International Classification of Diseases (Tenth Revision) codes, with data on demographic information, laboratory test results, mortality, and medication extracted. Incidence rates were calculated based on government population census data. Logistic regression was performed to identify clinical predictors of 30-day mortality.
Results: There were 953 patients diagnosed with CVT (mean age, 50.4 years; 48.6% males) in the study period, with 62 (6.5%) paediatric patients. The mean annual incidence rate was estimated to be 0.874 per 100 000 person-years (95% confidence interval [CI]=0.820-0.932), rising from 0.791 (95% CI=0.731-0.856) during the pre-COVID era (2009-2019) to 1.097 (95% CI=0.981-1.223) during the COVID era (2020-2023). The 30-day and 90-day mortality rates were 6.5% and 10.3%, respectively. No significant difference in mortality was seen between paediatric and adult patients (30-day mortality: 3.2% vs 6.7%, P=0.279; 90-day mortality: 6.5% vs 10.5%, P=0.304). Univariate predictors of 30-day mortality included age (P<0.0005), lower haemoglobin levels (P=0.001), higher white cell levels (P=0.008), and lower platelet counts (P=0.005).
Conclusion: There was a rise in CVT incidence during the COVID era. Early mortality was uncommon and was similar in paediatric and adult patients. Further studies are warranted to elucidate the epidemiological association between COVID-19 and CVT incidence.

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