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THE HONG KONG MEDICAL DIARY

香 港 醫 訊

VOL.24 NO.10 October 2019

Rehabilitation Medicine

OFFICIAL PUBLICATION FOR THE FEDERATION OF MEDICAL SOCIETIES OF HONG KONG ISSN 1812 - 1691

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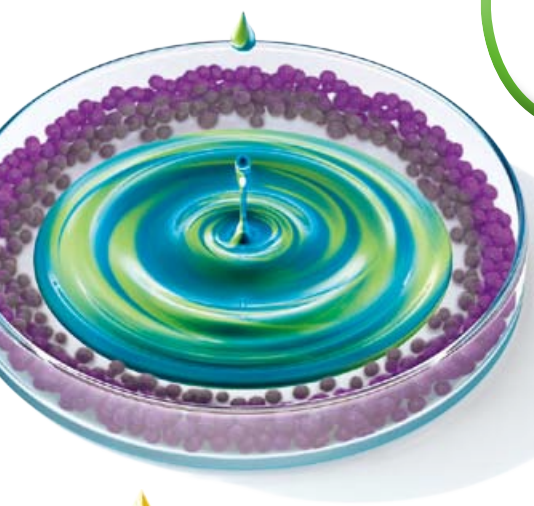

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MRSA, methicillin-resistant *Staphylococcus aureus*; CAP, community-acquired pneumonia; PORT, Pneumonia Outcomes Research Team; MIC, minimum inhibitory concentration.

References:

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PRESENTATION: Each vial contains ceftaroline fosamil acetic acid solvate monohydrate equivalent to 600 mg ceftaroline fosamil. **INDICATIONS:** Treatment for complicated skin and soft tissue infections (cSSTI) and community-acquired pneumonia (CAP) in adults and children from the age of 2 months. **DOSAGE: Age >12 years with bodyweight ≥33kg:** 600 mg administered q12h by intravenous infusion over 60 minutes. Increase to 600 mg q8h using 2 hours infusion for treatment of cSSTI due to S. aureus with ceftaroline MIC is 2 or 4 mg/L. **Age ≥ 12 years to < 18 years with body weight <33kg:** 12 mg/kg q8h over 60 minutes. **Age ≥ 2 years to < 12 years:** 12mg/kg q8h over 60 mins. **Age ≥ 2 months to < 2 years:** 8mg/kg q8h over 60 minutes. The recommended treatment duration for cSSTI is 5 to 14 days and for CAP is 5 to 7 days. Please refer to prescribing information for dose adjustment in patients with creatinine clearance ≤ 50 ml/min. **CONTRAINDICATIONS:** Hypersensitivity to ceftaroline fosamil or any excipients (e.g. arginine). Hypersensitivity to the cephalosporin class of antibacterials. Immediate and severe hypersensitivity (e.g. anaphylactic reaction) to any other type of beta-lactam antibacterial agent (e.g. penicillins or carbapenems). **WARNINGS & PRECAUTIONS:** Hypersensitivity reactions. In patients with history of hypersensitivity reaction to cephalosporins, penicillins or other beta-lactam antibacterials. *Clostridium difficile*-associated diarrhea. In patients with pre-existing seizure disorders. Possible development of a positive direct antiglobulin test (Coombs test) and potential risk of haemolytic anaemia. **INTERACTIONS:** The interaction potential of ceftaroline or ceftaroline fosamil on medicinal products metabolized by CYP450 enzymes is expected to be low since they are not inhibitors nor inducers of CYP450 enzymes *in vitro*. Ceftaroline or ceftaroline fosamil are not metabolized by CYP450 enzymes *in vitro*, therefore co-administered CYP450 inducers or inhibitors are unlikely to influence the pharmacokinetics of ceftaroline. Ceftaroline is neither a substrate, nor an inhibitor of renal uptake transporters (OCT2, OAT1, and OAT3) *in vitro*. Therefore, interactions of ceftaroline with medicinal products that are substrates or inhibitors of these transporters would not be expected. **PREGNANCY AND LACTATION:** Limited data for use in pregnant women. Preferable to avoid the use during pregnancy unless treatment with an antibiotic with Zinforo's antibacterial profile required. It is unknown whether ceftaroline fosamil or ceftaroline is excreted in human milk. Discontinue either breast-feeding or Zinforo therapy taking into account the benefit of therapy for the woman. **COMMON SIDE EFFECTS:** Coombs direct test positive, rash, pruritus, headache, dizziness, diarrhoea, nausea, vomiting, abdominal pain, increased transaminases, pyrexia, infusion site reactions (erythema, phlebitis, pain).

Reference: ZINFORO HK PI (version: July 2017)

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The Cover Shot

The front cover "Hong Kong at Dawn" was taken at the moment of sunrise in July 2019. The snapshot skill was drawn from painting skills of Yuan white and blue porcelain with multilayers of depth perception characterising their beauty even with mono-blue colour. There are 10 layers in this photo: at sea, near the ships, the mountains, the sunshine and the clouds. The picture touches you not by its parts but by the integrated whole. Rehabilitation Medicine is at the crossroad of fully adopting rapidly advancing technologies versus conventional multi-speciality multidisciplinary collaborative teamwork approach. Let's be flexible but strong, like multidimensional waveforms supporting ships in their treasured journeys. We need resource support in modernizing clinical and community rehabilitation facilities, equipment and project funds giving healthcare teams and the needy the clear rehabilitation paths to go forward.

Hong Kong, as a blessed land of China and our homeland, you are beautiful and will continue to prosper.

Dr Ernest HM MA

Specialist in Respiratory Medicine

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Recent Advances in Rehabilitation Medicine

Dr Ernest HM MA
Specialist in Respiratory Medicine

Editor

Dr Ernest HM MA

As one of the founding Council Members (1997) of the Hong Kong Association of Rehabilitation Medicine (HKARM) and subsequently Secretary (2009-2011) and 7th President of the HKARM (2011-12), I have witnessed much progress in the practice of Rehabilitation Medicine over the past two decades. For instance, Hong Kong pioneered a programme in silicosis rehabilitation. Trainers in Rehabilitation Medicine for the Hong Kong College of Physicians, including myself, have been celebrating the subspecialty becoming a specialty since late 2012. Since 2013, in collaboration with multiple specialties and multi-disciplinary teams, the specialty of Rehabilitation Medicine has made major advances in enhancing biopsychosocial functioning of clients and families, overcoming challenges of complex medical disabilities while interfacing with palliative care in advanced diseases. The key themes of advances include:

1) New emphasis on early rehabilitation following acute care, trauma, acute stroke and respiratory disease exacerbation. Use of cardiopulmonary monitoring technology and new equipment such as nasal high flow oxygen therapy, home ventilators, in-exsufflator and high-frequency chest wall oscillation have promoted high-tech home care as well as patient autonomy and comfort.
2) New rehabilitation technology complementing conventional manual rehabilitation training in both intensity and specificity in neurological rehabilitation. These include Robot-/AI-assisted gait training and upper limb training, EMG-driven neuromuscular electrical stimulation robot, lower limb robotic exoskeleton, virtual reality ADL training system, augmented reality and mixed reality, brain-computer interface, neurostimulation modalities as rTMS and tDCS, high-resolution ultrasound-guided injections, etc.
3) Evolving rehabilitation fields such as digital technology in stroke-risk appraisal and healthy lifestyle promotion, sleep apnoea and driving rehabilitation, exercise training in mental health care, vestibular rehabilitation, and Montessori-based activities programme in engaging dementia clients.
4) New paradigm of musculoskeletal and cancer rehabilitation in the era of biologics.
5) Advances in mobile wearable technology and tele-rehabilitation systems promote home-based rehabilitation or telerehabilitation in visceral disabilities such as chronic heart failure or respiratory diseases.

Complex multisystem disabilities are now reverted back to independent living through concerted efforts of medical and rehabilitation teams in Hong Kong. Along with promising advances in Rehabilitation Medicine, future clinicians and rehabilitation teams can do it even better!

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For detailed information, please refer to full prescribing information.

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Early Mobilisation in the Intensive Care Unit

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This article has been selected by the Editorial Board of the Hong Kong Medical Diary for participants in the CME programme of the Medical Council of Hong Kong (MCHK) to complete the following self-assessment questions in order to be awarded 1 CME credit under the programme upon returning the completed answer sheet to the Federation Secretariat on or before 31 October 2019.

INTRODUCTION

As the survival rate in critically ill patients improves, the morbidities and the long-term complications of the intensive care unit (ICU) survivors are increasingly recognised. Survivors often suffer from the Post-Intensive Care Syndrome (PICS), which is defined as a new or worsening impairment in cognition, mental health or physical function. The prevalence of PICS has been reported to be up to 83.7%.[1]

INTENSIVE CARE UNIT-ACQUIRED WEAKNESS (ICUAW)

After Bolton's description of a critically ill patient with polyneuropathy,[2] muscle weakness has been frequently found in patients in ICUs. ICU-acquired weakness (ICUAW) is defined by the American Thoracic Society as a syndrome of generalised limb weakness that develops while a patient is critically ill without any alternative explanation other than the critical illness itself.[3] The incidence of ICUAW was reported to be 25.3% to 100%. Although there is no universally accepted standard for the diagnosis of ICUAW, the majority of published studies applied the Medical Research Council (MRC) scale to grade the strength of three muscle groups in each limb, and the combined score of less than 48 is diagnostic of ICUAW. Electrophysiological studies may categorise ICUAW into critical illness polyneuropathy, critical illness myopathy or a combination. Although the pathophysiological mechanism is not well known, there are speculations that ICUAW may result from microcirculatory failure, mitochondrial dysfunction, sodium channelopathy, oxidative stress, selective myosin loss or muscle necrosis.[4] The consistently implied risk factors for ICUAW include age, sepsis, multiorgan failure, mechanical ventilation, hyperglycaemia and immobility. There are however conflicting data on the association between the use of glucocorticoids and neuromuscular blocking agents and ICUAW. ICUAW is associated with prolonged mechanical ventilation and ICU length of stay (LOS), as well as high ICU, hospital, and 1-year mortality rates. Herridge has found that ICU survivors had persistent functional disability up to 5 years.[5]

There are limited therapeutic options to prevent ICUAW. Stringent glycaemic control is associated with a lower rate of ICUAW, but also with an increased rate of life-threatening hypoglycaemia. After the publication of the first cohort study of early mobilisation in ventilated patients in 2007,[6] there is growing evidence that early mobilisation may improve the outcome of critically ill patients. "Early" refers to the commencement of rehabilitation immediately after stabilisation of physiological derangements, and often when patients still require ventilatory and vasopressor support,[7] and "mobilisation" refers to physical activity of sufficient intensity to produce physiological benefits, including enhanced circulation, ventilation, muscle metabolism and alertness.[8]

EARLY MOBILISATION

Early mobilisation encompasses different techniques, including a progressive range of motion activities, muscle strengthening exercises, functional mobility retraining, cycle ergometry, electrical muscle stimulation, and inspiratory muscle training. In most published studies, mobilisation would be initiated after patients became responsive to verbal stimulation and achieved respiratory and cardiovascular stability. The definition of clinical stability however varied in different studies: for example, Schweickert defined clinical instability as mean arterial blood pressure < 65 mmHg or > 110 mmHg; systolic blood pressure > 200 mmHg; heart rate < 40 bpm or > 130 bpm; respiratory rate <5 breaths per minute or > 40 breaths per minute; or pulse oximetry less than 88%.[9]

Protocolised physical activities were adopted in studies with variations. In the first trial comparing early mobilisation within 48 hours of ICU admission and usual care, Morris adopted a protocol with a stepwise approach from passive range of motion exercise, active resistance physiotherapy, sitting position in bed, sitting on edge of bed, transfer to and from bed and chair, seated balance activities, pre-gait standing activities and finally to ambulation. The mobilisation group was out of bed earlier (5 vs 11 days, $p<0.001$) and had shorter adjusted ICU (5.5 vs 6.9 days, $p=0.025$) and hospital length of stay (11.2 vs14.5 days, $p=0.006$).[10]

Schweickert, in his randomised controlled trial (RCT), found that early mobilisation within 72 hours after mechanical ventilation led to a 1.7 fold increase in the number of patients who could return to independent functional status when compared with the control

group. The intervention was associated with shorter duration of delirium (2 days vs 4 days, p=0.03) and mechanical ventilation (3.4 days vs 6.1 days, p=0.02), a longer walking distance at hospital discharge (33.4 m vs 0 m, p=0.004), and a higher Barthel Index score (75 vs 55, p=0.05), and more patients in early mobilisation could be discharged home directly (43% vs 24%).[9]

Shaller recruited 200 patients who had been mechanically ventilated for less than 48 hours, and found that early mobilisation was associated with better mobility in ICU (surgical optimal mobilisation score 2.2 vs 1.5, p<0.0001), decreased ICU length of stay (7 days vs 10 days, p=0.0054) and better functional mobility at hospital discharge (mmFIM score 8 vs 5. p=0.0002).[11]

However, the positive findings cannot be reproduced by two RCTs performed by Denehy and Moss. It is noteworthy that the physical therapy in the latter two RCTs was initiated rather late, at a median of 7 days and eight days respectively. Moreover, the intensity of physical therapy in the control group in the two trials was greater than in the control group in the positive controlled trials.

Apart from protocolised bedside mobilisation, other methods of physical therapy have also been investigated. Burtin, in his RCT comparing bedside cycle ergometry for 20 minutes per day and standard mobilisation, found that the 6-minute walk distance, quadriceps strength and the subjective functional well-being were significantly better in the intervention group.[12] Routsi, in an RCT evaluating the electrical muscle stimulation (EMS) and usual care, found that daily EMS was associated with a lower incidence rate of critical illness polyneuromyopathy, a higher MRC score for muscle strength and a shorter duration of weaning from mechanical ventilation.[13] Fossat, however, found no benefits of cycle ergometry plus EMS in addition to early mobilisation in terms of muscle strength, functional activity or ventilator-free days.[14]

Although the optimal dosage and timing of initiation of physical therapy are still not well defined, the beneficial effect of early rehabilitation has been demonstrated in multiple systematic reviews. Connolly conducted an overview of systematic reviews evaluating early rehabilitation in ICU and found that early physical therapy improved ICUAW, quality of life, mortality and healthcare utilisation.[15] Lord developed a financial model by applying data from existing publications and the experience of early rehabilitation programmes in the Johns Hopkins Hospital Medical ICU. Of the 24 scenarios included in the sensitivity analysis, 20 (83%) demonstrated net savings.[16]

Early mobilisation and muscle strengthening are recommended in the European Society of Intensive Care Medicine (ESICM) statement for physiotherapy for critical illness.[17] Multiple quality improvement projects have been successfully implemented worldwide, and shorter ICU LOS, higher patient functional state, a lower prevalence rate of deep vein thrombosis and pneumonia and a higher rate of patients being discharged home were found after the quality improvement project implementation.[18]

BARRIERS TO EARLY MOBILISATION

To implement early mobilisation in ICU, we have to identify and overcome some barriers. Dubb, in a focused literature review, found 28 barriers to early mobilisation and categorised them into patient-related, ICU cultural, structural and process-related barriers.[19]

Patient-related barriers include clinical instability, deep sedation, delirium, catheters and devices. A multidisciplinary approach can be adopted to assess patients for suitability for early mobilisation, and a protocol can be developed to define the inclusion and exclusion criteria for mobilisation. As deep sedation was associated with a longer ICU length of stay, there is a paradigm shift from deep sedation to interrupted or protocolised sedation. Patients with delirium can be identified using tools like the confusion assessment method for the ICU (CAM-ICU) or the Intensive Care Delirium Screening Checklist (ICDSC). Benzodiazepines have been identified as risk factors for delirium, and thus decreasing the dosage or replacing them with other sedatives like dexmedetomidine may be beneficial. The delirious patients should be examined for precipitating causes like pain, infection, hypotension, electrolyte disturbance and medications. The Society of Critical Care Medicine (SCCM) recommends for ICU patients an ABCDEF bundle, which is comprised of: Assess, Prevent, and Manage Pain, Both Spontaneous Awakening Trials (SAT) and Spontaneous Breathing Trials (SBT), Choice of analgesia and sedation, Delirium: Assess, Prevent, and Manage, Early mobility and Exercise, and Family engagement and empowerment.[20]

ICU culture-related barriers have been reported as obstacles in up to 60% of studies. These include an attitude regarding early mobilisation as low priority, inadequate knowledge about the benefits and techniques of early mobilisation, and incorrect perception of early mobilisation as an unsafe procedure in critically ill patients. As there is growing evidence that early mobilisation is beneficial, we hope that more ICU staff will regard early mobilisation as a high-priority intervention in the management of critically ill patients. Bailey, in the first trial comparing early mobilisation and usual care, found only six activity-related adverse events in 1,449 activity events conducted.[6] Nydahl, in a systematic review, regarded early mobilisation as a safe procedure, with a low incidence rate of potential safety events.[21] In his systematic review, the pooled incidences were 3.8 and 1.9 per 1,000 mobilisation sessions respectively for haemodynamic changes and desaturation. We have also had the experience that patients may demonstrate significant haemodynamic changes during mobilisation, and we have found some medical equipment like tilt-beds particularly useful as we can easily put our patients into resting position. Catheters and life-supporting devices are perceived barriers to early mobilisation. Damluji, in a retrospective study involving a cohort of 239 patients with femoral catheters inserted, found that they were able to perform in-bed exercises, cycle ergometry and stand or walk exercise on 38%, 12% and 23% of days respectively, without any catheter-related adverse events.[22] Toonstra evaluated the safety of physical therapy during continuous renal replacement therapy (CRRT) in 57 patients, and found only 6 (2.2%) non-CRRT-related

adverse events, all of which involved transient changes in blood pressure.[23]

Structural barriers include lack of manpower and equipment, inadequate staff training, lack of early mobility programme, and patients being discharged to general wards before mobilisation. Process-related barriers include lack of planning and coordination, missing eligible candidates for early mobilisation, and unclear expectations, roles and responsibilities of different healthcare professionals. Early rehabilitation in ICU involves multiple professional disciplines, and ideally additional resources and manpower should be sought. Some strategies have been suggested in previous studies, including the development of an independent mobility team, the development of protocols for screening, initiating and escalating the physical activities, and the implementation of inter-professional meetings and rounds.

CONCLUSION

In conclusion, early mobilisation in ICU is a rather new intervention. It is safe and cost-effective with potential benefits of improving physical strength and functional status, and decreasing the duration of mechanical ventilation and of both ICU and hospital stay. It is worthwhile for us to identify and overcome all possible barriers to early mobilisation.

Acknowledgements

The authors thank Dr Stephenie Hoi-ying Mak for her editorial assistance.

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Fig. 1. In-bed cycle ergometry (Personal Collection)

Fig. 2. The emergency button on the tilt bed allows putting patients in supine position in short time. (Personal Collection)

Fig. 3. Walking exercise in an intensive care unit (Personal Collection)

MCHK CME Programme Self-assessment Questions

Please read the article entitled "Early Mobilisation in the Intensive Care Unit" by Dr Chung-tat LUN and Dr Philip Koon-ngai LAM and complete the following self-assessment questions. Participants in the MCHK CME Programme will be awarded CME credit under the Programme for returning completed answer sheets via fax (2865 0345) or by mail to the Federation Secretariat on or before 31 October 2019 Answers to questions will be provided in the next issue of The Hong Kong Medical Diary.

Questions 1-10: Please answer T (true) or F (false)

1. Intensive Care Unit-acquired weakness is a common complication in critically ill patients.
2. Intensive Care Unit-acquired weakness can only be diagnosed by eletrophysiological studies.
3. There is a lack of evidence to support early mobilisation in the Intensive Care Units.
4. Rehabilitation should only be started after patients being extubated and breathing without ventilatory support.
5. The current evidence suggests early mobilisation is an unsafe intervention in patients with femoral catheter inserted.
6. Post-ICU syndrome is defined as new impairment in physical function only.
7. "Mobilisation" refers to physical activity of sufficient intensity to produce physiological benefits, including enhanced circulation, ventilation, muscle metabolism and alertness.
8. The delirious patients should be examined for precipitating causes like pain, infection, hypotension, electrolyte disturbance and medications.
9. Early mobilisation is safe and cost-effective with potential benefits of improving physical strength and functional status, decreasing mechanical ventilation duration, and both ICU and hospital length of stay.
10. Early rehabilitation in ICU should involve physiotherapists only.

ANSWER SHEET FOR OCTOBER 2019

Please return the completed answer sheet to the Federation Secretariat on or before 31 October 2019 for documentation. 1 CME point will be awarded for answering the MCHK CME programme (for non-specialists) self-assessment questions.

Early Mobilisation in the Intensive Care Unit

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Answers to September 2019 Issue

An Overview of Surgical Treatment for Temporomandibular Joint Pathologies

1. T 2. F 3. T 4. F 5. T 6. F 7. F 8. T 9. T 10. F

F&P Optiflow | Humidified High Flow

The mechanisms of airway hydration, respiratory support, patient comfort and supplemental oxygen contribute to distinct physiological effects.[1-6]

Humidified High Flow therapy delivers respiratory support to your spontaneously breathing patients, by providing heated, humidified air and oxygen at flow rates up to 60 L/min through the unique Optiflow™ interfaces.

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exacerbations and hospital admissions in COPD patients[7]

Secretion management

Humidified High Flow may improve mucociliary clearance.[1]

Who has impaired mucociliary clearance?

- COPD[8]
- Bronchiectasis[8]
- Cystic fibrosis[8]
- Asthma[8]
- Tracheostomy[9]
- Mucositis[10]
- Primary/secondary ciliary dyskinesia[8]

What are the effects of impaired mucociliary clearance?

Frequent and productive coughs

Recurring sinus and pulmonary infections

Dyspnea due to airflow obstruction

F&P Optiflow+ | Tracheostomy interface

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Musculoskeletal and Cancer Rehabilitation in the New Era of Biologics

Dr Brian Chi HO
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INTRODUCTION

The management of rheumatic diseases has been revolutionised by the development of biologic therapy in the past decade. Effective treatment is now available for previously highly disabling diseases that are resistant to conventional therapy, such as rheumatoid arthritis and ankylosing spondylitis. Biological therapy is a new class of therapeutic drugs which has a targeted interaction with a specific cellular receptor or molecule involved in the disease pathogenesis. The development of anti-tumour necrosis factor (anti-TNF) inhibitors, interleukin-6 (IL-6) inhibitors, interleukin-12/23 (IL-12/23) inhibitors, interleukin-17 (IL-17) inhibitors and Janus kinase (JAK) inhibitors have significantly improved the disease outlook of inflammatory joint diseases, and disease remission is now a realistic goal. Breakthroughs in the treatment of connective tissue diseases such as systemic lupus erythematosus have occurred with the use of B-cell depleting agents and B-lymphocyte stimulator (BLyS) antibodies. Targeted cancer therapy, most notably immune checkpoint inhibitors, has drastically prolonged the survival of patients with metastatic melanoma or advanced non-small cell lung carcinoma. Many novel targeted cancer therapies of different mechanisms are being investigated in phase II/ III clinical trials, and they are expected to be released into the market in the near future. Rehabilitation in patients with rheumatic disease or cancer has been difficult in the pre-biologics era, due to the lack of effective treatment. Many of them have succumbed to disability due to overwhelming disease activities. Along with the advancement in treatment modalities, early rehabilitation is now possible to restore patients' structure and function, and to enhance their activities and social participation.

RHEUMATOID ARTHRITIS

Rheumatoid arthritis is an autoimmune disorder, typically affecting small hand joints, with chronic synovitis resulting in bone erosion and chronic disability. Rehabilitation in patients with rheumatoid arthritis aims to reduce pain, improve patients' function and slow disease progression. Pharmacological therapy alone is not sufficient to restore patients' health and function. The current concept of rheumatoid arthritis rehabilitation includes: kinesiotherapy, physiotherapy, assistive aids, and psychosocial intervention. Kinesiotherapy is the therapeutic use of active or passive muscle movement, or exercise for the disease. Strong evidence shows that exercise prescription of aerobic and resistance training improve patients' functional ability and cardiovascular tolerance, regardless of their baseline limited or extensive joint damage.[1] It also helps to overcome disease-related barriers such as fatigue or depression. Physiotherapy, including acupuncture, transcutaneous electrical nerve stimulation (TENS), and thermotherapy have proven to be efficacious in alleviating pain in rheumatoid arthritis, according to the Cochrane database review. The education of joint protection techniques, ergonomic principles, use of assistive devices to compensate for muscle weakness and to maintain patients' functions, are useful. Assistive devices including orthopaedic footwear, personal care devices, mobility aids and housing adaptation significantly improve patients' disease coping and life satisfaction. Splinting, depending on the indication and design, can help to relieve pain, correct joint position and prevent joint contracture, especially for metacarpophalangeal splints or finger splints in RA.[2] Not surprisingly, psychosocial intervention including cognitive-behaviour therapy (CBT), stress/ pain management skills, progressive muscle relaxation and group counselling greatly boost the overall health status of patients, and should be regarded as important adjuncts to pharmacological therapy.[3]

SPONDYLOARTHRITIS

Spondyloarthritis is an umbrella term describing a group of autoimmune disorders affecting the joints and entheses, including ankylosing spondylitis, psoriatic arthritis, reactive arthritis and enteropathic arthritis. Most studies on rehabilitation of spondyloarthritis recruited patients with ankylosing spondylitis, which is the most recognised disease in the spectrum. Combining pharmacology and non-pharmacological therapies including exercise, physiotherapy, spa/ balneotherapy, occupational therapy and psychosocial intervention, can have synergistic effects on the treatment of ankylosing spondylitis (AS). A balanced exercise programme with emphasis on stretching, strengthening, cardiovascular and functional fitness has been recommended by the Australian consensus group in physiotherapy. A study has shown that the combination of a home exercise programme with anti-TNF therapy is superior to anti-TNF therapy alone.[4] Physiotherapy modalities including transcutaneous nerve stimulation, thermotherapy, and infrared sauna therapy have various degree of efficacy in pain relief and functional improvement. Spa/ balneotherapy, which has long been utilised in the management of ankylosing spondylitis and other forms of inflammatory

joint disease, alleviates patients' pain, fatigue, stiffness and overall sense of well-being. Intensive spa therapy together with etanercept has been shown to be superior to etanercept alone.[5] Occupational therapy with interventions like education about self management of AS , relevant activities of daily living (ADL) training, joints protection and energy conservation, in anti-TNF therapy treated patients, showed additional beneficial effects on pain, function and disability.[6] Psychosocial intervention is an essential part of AS rehabilitation, as in other inflammatory joint diseases, in enhancing patients' sense of well-being, disease coping and self-management.

SYSTEMIC LUPUS ERYTHEMATOSUS

Systemic lupus erythematosus (SLE) is an autoimmune disorder of unknown aetiology involving multiple organs including skin, mucosa, heart, kidney, brain and/or other organs, with certain comorbidities such as cardiovascular disease, infection, malignancies and osteoporosis. Both disease activities of the SLE and cumulative drug treatment especially long-term steroids lead to damage accrual resulting in significant long-term disabilities. Due to the diverse disease spectrum and manifestation, an individualised multi-faceted rehabilitation programme is needed. Rehabilitation modalities include physical therapy, occupational therapy, speech therapy, recreational therapy, and psychosocial intervention, as SLE patients have been reported to undertake fewer physical activities due to fatigue and depression. Aerobic exercise and isometric strengthening exercise have shown to reduce fatigue and improve the overall health status, with no aggravation in SLE patients with mild-moderate disease activities.[7] Active or passive range-of-motion exercises improve joint flexibility and reduce stiffness. The exercise/rest pattern of the exercise programme should be designed according to the patients' pattern of fatigue, in order to optimise the patients' activity levels. A pilot randomized controlled trial has shown that acupuncture may be useful in reducing pain and fatigue in patients with SLE.[8] Occupational therapy with education on the disease nature and self-management, training on the ADL, joint protection, energy conservation technique and assistive device have been reported to be helpful. Speech therapy should be given to patients with neuropsychiatric manifestations, especially for those with slurred speech, difficulty in speech comprehension and swallowing. Cognitive-behavioural therapy, psychosocial education, relaxation and counselling have been shown to reduce stress and anxiety related to the SLE.

IDIOPATHIC INFLAMMATORY MYOSITIS

Idiopathic inflammatory myositis (IIM) is a rare chronic autoimmune inflammatory disorder affecting the muscle, including dermatomyositis, polymyositis, and inclusion body myositis. Persistent muscle inflammation, immobility and chronic use of steroids contribute to muscle weakness and atrophy. Impaired muscle strength and endurance arise as a result of myalgia and muscle atrophy, limiting the patients' activities and participation. Since muscle strength is correlated with the patients' functioning and quality of life, regaining muscle strength is the cornerstone for every myositis rehabilitative programme. Active physical exercise, including muscle strengthening and aerobic exercise, has proven to be effective in training of muscle endurance; patients have also reported that such physical exercise do not lead to exacerbation of inflammatory myositis. There was no change in serum creatinine-kinase (s-CK), magnetic resonance imaging (MRI) and muscle histology after a course of muscle training.[9] There have been rebuttal arguments that exercise may cause additional inflammation. Aquatic-based exercise allows muscle training with less fatigue and better joint protection, compared to land-based exercise. In inclusion body myositis (IBM), the muscles of the forearms, wrists (flexor) and hands are classically affected. Patients with IBM would require hand exercise using tendon glide exercise and strengthening aids which focus on the range of motion exercise. Joint protection, ergonomic principles and splinting should also be taught to this group of patients. Other physiotherapy modalities including transcutaneous nerve stimulation, paraffin wax treatment and fluid therapy may help myositis patients with painful joints.

FIBROMAYALGIA

Fibromyalgia is a common illness characterised by widespread pain, sleep disturbance and cognitive dysfunction, probably caused by central pain sensitisation, with its exact pathogenesis not fully elucidated. It is associated with irritable bowel syndrome, anxiety and depression, and significant impairment in patients' functions and quality of life. Given the heterogenicity of the diseases, patients respond differently to each treatment modality. Multimodal approaches including pharmacological therapy and non-pharmacological therapy would maximise the chance of positive response. Current international guidelines strongly recommend, self-management techniques, advice to stay active, and education on the nature of the disease and on the expectation to have a normal life expectancy. A Cochrane review revealed that both aerobic exercise and resistance training were associated with reduction in pain level and improvement in functioning. Meditative movements such as Tai Chi, qigong or Yoga improved patients' sleep quality and fatigue. Cognitive-behavioural therapy and mindfulness-based stress reduction have also improved pain compared to the standard of care. Physical therapy techniques including hydrotherapy/balneotherapy and acupuncture have also shown promising results. Multicomponent therapy, which is an intervention combining education with exercise or psychotherapy, has yielded positive results in pain and fatigue. Numerous studies on the effectiveness of thermotherapy, phototherapeutic therapy, music therapy and journaling/storytelling are on-going, and recommendations cannot be drawn until more data are available.[10]

CANCERS

The societal burden of cancer has been heavier than ever due to the increased disease prevalence, improved patient survival and the older mean age of patients. Cancer patients suffer from reduced general well-being,

deteriorated physical strength, fatigue and symptoms specific to their respective type of cancer such as lymphoedema. Cancer rehabilitation helps patients with cancer to maintain or restore function and mental well-being, throughout the period before, during and after cancer therapy. Multidimensional therapy including patients' education on the disease nature and self-management, exercise, physiotherapy, psychotherapy and specific therapy according to their specific type of cancer, is essential in the restoration of the patients' previous function and participation. The international classification of functioning, disability and health can provide a framework on cancer rehabilitation, while efforts must be taken to individualise each programme, and to meet the need of each patient with different cancer-types and disabilities.[11]

CONCLUSION

Musculoskeletal and cancer rehabilitation should start as soon as effective pharmacological treatment has begun, to prevent long-term detrimental effects on health. Rehabilitation is an integral part of treatment in addition to the novel pharmacological treatment, providing a synergistic effect to restore the patients' function and social participation. The emerging biological therapy allows effective disease control, and therefore renders early rehabilitation possible. The rehabilitation programme should be evidence-based, patient-centred and tailored-made, according to the patients' personal and environmental factors, such as social support, resource availability and coping style. A multi-disciplinary approach involving dedicated physiotherapists, occupational therapists and mental health professionals with specialised knowledge and experience in musculoskeletal diseases and cancer, would be essential for a successful rehabilitation programme.

Table.1: Rehabilitation modality in patients with musculoskeletal diseases or cancer

Disease	Modality of rehabilitation
Rheumatoid arthritis	• Kinesiotherapy: aerobic exercise, resistance training, active/ passive muscular movement • Physiotherapy: acupuncture, transcutaneous nerve stimulation (TENS), thermotherapy • Occupational therapy: education on disease nature, joint protection technique, ergonomic principles • Assistive device: orthopaedic footwear, personal care device, mobility aids, household modification • Splinting: metacarpophalangeal or fingers splints • Psychosocial intervention: cognitive-behavioural therapy, stress/ pain skills, progressive relaxation technique, group counselling *summarized from [1, 2, 12-16]
Ankylosing spondylitis	• Kinesiotherapy: balanced exercise programme with stretching, strengthening, cardiovascular and functional fitness, home-based exercise • Physiotherapy: TENS, thermotherapy, infrared sauna therapy, spa/ balneotherapy • Occupational therapy: education on disease nature, Activities of daily living training, joint protection technique, energy conservation technique • Psychosocial intervention *summarized from [5, 6, 17-19]
Systemic lupus erythematosus	• Kinesiotherapy: aerobic exercise and isometric muscle strengthening, active/ passive range of movement exercise • Physical therapy: acupuncture • Occupational therapy: education on disease nature, Activities of daily living training, joint protection technique, energy conservation technique, assistive device • Speech therapy (for neuropsychiatric lupus with swallowing/ articulation involvement) *Summarized from [9, 22, 23]
Idiopathic inflammatory myositis	• Kinesiotherapy: muscle strengthening and aerobic exercise, aquatic-based exercise • Hand exercise with assistive aids (for Inclusion body myositis) • Physiotherapy: TENS, paraffin wax treatment, fluid therapy • Occupational therapy: education on disease nature, joint protection technique, ergonomic principles • Splinting (for hands/ wrists involvement in IBM) *Summarized from [9, 22, 23]
Fibromyalgia	• Kinesiotherapy: aerobic and resistance training, a meditative movement like Tai Chi, Qigong, Yoga • Physiotherapy: acupuncture, balneotherapy, hydrotherapy • Psychosocial intervention: Cognitive-behavioural intervention, mindfulness-based stress reduction • Education on the nature of disease & self-management *Summarized from [10]
Cancer	• Education on disease nature, self-management, exercise, physiotherapy, psychotherapy • Specific therapy according to the type of cancer *Summarized from [11]

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Radiology Quiz

Radiology Quiz

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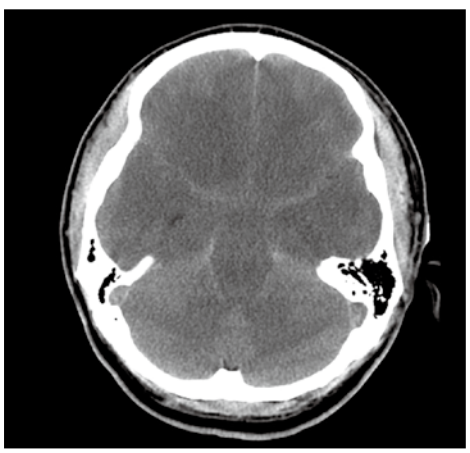

Questions

1. What are the findings on the CT Brain of this critically-ill patient?
2. What is the name of the radiological sign?
3. What are the causes?
4. What are the differential diagnoses?

(See P.36 for answers)

Cognitive Intervention and Brain Stimulation Therapies for Dementia

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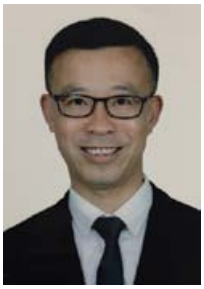
Dr Victor Wing-cheong LUI Dr Frank Ho-yin LAI

The number of people with dementia is escalating globally. About 47 million people were living with dementia in 2015 worldwide.[1] Dementia is a chronic disease and patients need to live with cognitive impairment for a substantial period of time, which in turn causes a lot of distress and difficulties to patients, their families and society. However, the effectiveness of anti-dementia drugs, namely cholinesterase inhibitors and memantine, in preventing cognitive decline is limited. Some patients may not tolerate the side effects of anti-dementia drugs. Non-pharmacological approaches, such as cognitive intervention and brain stimulation methods, are used. This article would present an overview of these approaches.

COGNITIVE INTERVENTION

Cognitive interventions are widely employed in hostels, day centres and hospitals for patients suffering from mild to moderate dementia. They encompass a diverse range of cognitive activities. Clare and Woods (2004) broadly classified these cognitive interventions into three approaches, namely cognitive stimulation, cognitive training and cognitive rehabilitation.[2]

Cognitive Stimulation

Cognitive stimulation has the strongest evidence base among cognitive intervention approaches and is cost-effective in improving cognition.[1] It has been shown in meta-analysis that cognitive stimulation can benefit general cognition and self-reported quality of life.[1] It is usually a group-based intervention led by a coordinator or facilitator. Its emphasis is to involve multiple cognitive domains, instead of targeting on one specific domain.

Cognitive stimulation essentially comprises a range of activities, including reminiscence therapy, reality orientation, multisensory stimulation, and social activity. One example is 14 twice-weekly group sessions that take place over 7 weeks.[3] These sessions cover different topics, such as childhood, faces/scenes, food, using money and current affairs. However, it was unclear which aspects of cognitive stimulation are the most effective and such cognitive stimulation might not be applicable in all settings.[1]

Cognitive Training

Unlike cognitive stimulation, cognitive training is more focused on standardised training related to specific cognitive domain.[4] The training format can be in a group but can also be individualised. Its emphasis is to restore a specific function through practice. However, as there are various cognitive domains, there is marked variability in training strategies and outcome measures. While training may have observable effects on healthy elderlies, evidence on its effectiveness in patients with dementia is limited and warrants further evaluation.[1]

Interestingly, training in some specific cognitive functions may lead to an improvement in untrained general cognitive function. Chunking is a psychological process of recognising or enforcing patterns upon information gathering and of compressing information into a more recall-efficient pattern. The ability to use chunking is preserved in early Alzheimer's disease. Huntley et al. (2017) reported a randomised controlled trial providing, over the trial period of eight weeks, eighteen 30-minute sessions of either adaptive working memory training in verbal chunking strategies or a control intervention Patients with Alzheimer's disease demonstrated significant improvement in trained verbal working memory task, and also on general cognitive function in comparison to control subjects.[5]

Cognitive Rehabilitation

The importance of rehabilitation for patients with dementia has long been recognized.[4] For dementia, the aim of rehabilitation is to optimise everyday function by helping the patient set individual goals and devising strategies to achieve these goals. Such rebabiliation is individual-based and is mainly used for mild dementia. It involves multi-disciplinary input. Carers are regarded as team members but care for family carers is also an important goal of rehabilitation.

The evidence on its effectiveness is growing. Regan et al. (2017) reported a 2-year multicentre randomised controlled trial.[6] Their intervention was four-weekly 1-hour sessions delivered to patients and their carers in the patients' homes with a focus on an individualised intervention addressing personally meaningful goals (such as to learn the names of people at church, to remember more about grandchildren's activities, or to take medication reliably). Patients and their carers were encouraged to help brainstorm and select the most appropriate strategies. They found that patients in the intervention group reported higher level of goal performance and satisfaction than those in the control group.

A large multicentre study of goal-orientated cognitive rehabilitation in mild dementia was recently published.[7]

In this study, participants were asked to identify areas in which they would see improvements and set goals. Their cognitive rehabilitation consisted of 10 weekly sessions with therapists over 3 months, followed by four sessions over the following 6 months. It was found that the 209 participants who received cognitive rehabilitation were doing significantly better than those who received treatment as usual in relation to their goals, and these improvements were sustained 6 months later.

BRAIN STIMULATION

Empirical studies showed that two main brain stimulation therapies might be useful in improving one's cognitive performance. They are transcranial direct current stimulation (tDCS) and repetitive transcranial magnetic stimulation (rTMS).

Transcranial Direct Current Stimulation

tDCS is a simple, non-invasive brain stimulation technique that is capable of modulating cortical activity and inducing neuroplasticity mechanism.[8] During the treatment, a weak electrical current is delivered through two scalp electrodes by a portable battery-powered stimulator. The current density, calculated on the basis of the power intensity divided by the area of the electrode, is used as a marker of dosage and influences the after-effects.[9]

Studies have demonstrated that tDCS enhances memory function in cognitive rehabilitation. Ferrucci et al. (2008) reported that tDCS delivered over the temporoparietal areas could specifically affect a recognition memory performance in patients with Alzheimer disease.[10] It was postulated that tDCS could improve cognitive function of older adults with dementia by altering

- neuronal activity,[11]
- cerebral blood flow,[12]
- synaptic and non-synaptic after-effects,[13]
- neurotransmitter polarity-dependency,[14]
- oscillatory brain activity[15,16] and
- functional connectivity patterns in the brain.[17]

However, further large-scale clinical and mechanism-oriented studies are needed to establish its therapeutic efficacy in different types of dementia.[18,19]

It is noteworthy that there has been a trend to develop a protocol in combining rehabilitation training with tDCS and cognitive training.[20] Andre et al. (2016) found that in patients with mild vascular dementia, anodal tDCS of the left dorsolateral prefrontal cortex (DLPFC) could produce additional effects to cognitive training on some tasks.[21]

Repetitive Transcranial Magnetic Stimulation

rTMS has been increasingly used in the management of various neurological and psychiatric disorders. For dementia, rTMS has been used to non-invasively modulate cortical excitability and induce lasting effects. Cotelli et al. (2011) applied daily high frequency (HF) rTMS over the left DLPFC of patients with Alzheimer's disease, 25 minutes per day, five days a week for two weeks. In this study, real rTMS was found to improve performance in cognitive tests for up to 8 weeks following the end of treatment.[22] A study by another group reported that five daily sessions of HF rTMS applied over the left then the right DLPFC could improve cognitive function in patients with mild to moderate Alzheimer's disease for up to 3 months after the stimulation period.[23]

A randomised double-blind study reported that a 6-week cognitive training combining daily sessions of HF rTMS can improve cognitive function in Alzheimer's disease.[24] However, more large-scaled studies are needed to replicate the findings. Like tDCS, its clinical utility and protocols need further evaluation.

CONCLUSION

Cognitive intervention and brain stimulation therapies may benefit the cognitive function in patients with dementia non-invasively. These interventions may improve the quality of life of patients and their carers. These therapies can be used in combination with each other. However, more studies and evidence are needed to evaluate their clinical utilities and to enable formulation of clear clinical recommendations.

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Artificial Intelligence for Rehabilitation Robotics

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INTRODUCTION OF REHABILITATION ROBOTICS

Rehabilitation robotics is an enabling technology that emerged more than two decades ago. These robots were initially used as assistive devices for passively supporting and guiding the limb movements in a repetitive fashion. Disabled people with neurological disorders such as stroke survivors cerebral palsy or polio patients having motor impairments, can use these specially designed robotic devices to assist their limb movements in parallel with their conventional physiotherapy sessions. Some notable examples are the Lokomat (Hocoma AG, Switzerland), a treadmill-based lower-limb robot providing augmentation and weight-bearing in gait training, and the MIT-MANUS, a training device returning sensory feedback to facilitate arm and hand locomotion.[1] The main advantage of these robots is the automation of rehabilitation that may reduce the workload of therapists in some physically demanding operations, allowing therapists to be more focused on personal interaction with patients. Such automation may also allow simultaneous monitoring of multiple patients, hence achieving more efficient use of resources.

A meta-analysis of 36 clinical trials involving 1,472 stroke patients showed that robot-assisted gait training in combination with conventional physiotherapy could significantly improve gait independence of the participants, and could likely increase their walking speed and walking capacity.[2] The majority of the existing clinical trials prescribed 3-4 weeks' gait training, for 2-3 sessions per week. Evidence suggests stroke patients in the acute phase (the first three months after stroke) stands a better chance of benefitting from the training than those in the chronic phase. Robot-assisted gait training is also effective in non-ambulatory patients. Hence, it is now standard recommendation that stroke patients should pick up gait training early after the stroke.

AUTONOMY OF REHABILITATION ROBOTICS

Recent research and development in rehabilitation robotics has placed great interest in Artificial Intelligence (AI). Since exoskeleton robots that move against a wearer's movement could result in body injury and limited benefit on motor recovery, users or wearers should retain as much control as possible for reasons of safety and compliance. Instead of relying on a fully autonomous system, researchers mainly target at developing intention-driven rehabilitation robots that can encourage patients to have self-initiation of body movement and active participation in physiotherapy.

AI implementation often uses shared control between humans and machines. The user initiates limb movements, such as walking, stair climbing, picking up objects, or hand opening,while the robot guesses the user intention without the user explicitly indicating his/her targets. Using feedback from multiple body sensors as input signals, the robot could detect classified user intention using some trained, supervised classifiers,such as support vector machine (SVM) and artificial neural network (ANN), based on which the robot will then produce desirable outcomes as motor output or sensory feedback.[1,3]

Many research studies are investigating various methods of extracting useful features from different bio-signals. A recent research study attempted to classify different ankle angular movements based on electromyography (EMG) measured on leg muscles.[4] They applied the logarithmic transformation on the EMG and obtained a classification accuracy of 97.3% using linear discriminant analysis (LDA). Another study used leg movements and orientation measured by accelerators and gyroscopes mounted on the shank and foot to classify walking conditions on level ground, stairs and slopes. They reported up to 100% classification accuracy using SVM.[5] Some studies in prosthetic design involved surgically re-routing motor nerves or sensory nerves on various locations of the upper-body, commonly the large pectoralis major muscle on the chest for decoding and mapping control and for sensation of a prosthetic arm–a technique called targeted muscle reinnervation (TMR).[6]

ADAPTABILITY OF REHABILITATION ROBOTICS

Unlike industrial robots which are highly precise with reproducible movement patterns, rehabilitation robots have to deal with large variations between different users and ever-changing conditions within the same user. For example, the stroke patient population demonstrates a broad continuum of disability and secondary complications such as disuse atrophy and muscle spasticity – from weak limbs that merely hold position, to stiff joints that are literally rigid. The severity levels may dynamically improve or deteriorate over time because of successful physiotherapy or natural degeneration respectively. Furthermore, patients often learn to adopt their own compensatory strategies in response to functional disability, such that each

individual would carry his own unique limb movement pattern. Adaptive control of rehabilitation robots is preferred for assistance customised to individual needs.

Assist-as-necessary - principle is a common technique in physiotherapy to adjust the assistance level and training intensity based on the patients' performance during training, so as to avoid patients becoming overly dependent on the assistance provided. Some robotic AI designs use a virtual force-field tunnel to guide the limb movement, implementing error correction to adjust the assistive force and to maintain the joint angle on the target trajectory if and when the robot detects any angular deviation.[1,7]

HOME-BASED REHABILITATION ROBOTS

Recently, our research team at the Chinese University of Hong Kong has developed a lightweight (about 0.5 kg on ankle) portable Exoskeleton Ankle Robot that is capable of assisting level-ground walking and stair ascend/descend in stroke patients with up to 98% classification accuracy of user intention,[8] whereas the 2% error arises from misclassification of two similar ankle dorsiflexion movements, level walk and stair ascend,that do not impose great risk to the wearer if incorrectly executed. Its untethered portable design enables wearers to carry out gait training for activities of daily living, including outdoor environment with stairs. Results of a randomised controlled trial (RCT) evaluated the effectiveness of wearing the powered Ankle Robot for 20-session robot-assisted gait training with stairs, and demonstrated that the participating stroke patients demonstrated significantly greater improvements in gait independency. All patients could walk independently in a stair environment; this is favourably compared to the control group wearing unpowered ankle-foot orthosis for the same gait training, in whom only limited improvements were observed.

Rehabilitation robots that are capable of autonomous operation with the minimal direct intervention of therapists can potentially be useful in home-based rehabilitation, which is particularly suitable for functional training that requires long-term repetitive practices, such as gait training. With due acknowledgement that the AI technology has opened up opportunities for home-based rehabilitation, it is important to note that AI should never be the substitution for the human therapists;but rather, AI is simply a tool that can enhance the productivity and reliability of rehabilitation work.

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Fig. 1. Exoskeleton Ankle Robot for providing gait assistance of stroke patients in level ground walking and stair ambulation. (Personal collection)

Fig. 2. A stroke patient wearing the Ankle Robot when he is participating in gait training on stairs. (Personal collection)

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New Trends in the Application of Technology in Health Care and Rehabilitation

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INTRODUCTION

Advanced technologies are increasingly applied in health care and rehabilitation. "Assistive Technology (AT)" is a well-recognised one, defined as "any item, piece of equipment or product system, whether acquired commercially off the shelf, modified or customised, that is used to increase, maintain or improve functional capabilities of individuals with disabilities."[1] "Rehabilitation Technology" improves physical, cognitive and neurological functions, and can be grouped under AT.[2] World Health Organization (WHO) put AT under "Health Technology", the application of organised knowledge and skills in the form of devices, medicines, vaccines, procedures and systems developed to solve healthcare problems and improve quality of life.[3]

"Persuasive Technology" is a vibrant and highly interdisciplinary research field focusing on design, development and evaluation of interactive technologies with the claim of changing users' attitudes and behaviours without coercion or deception.[4] MacLachlan (2004) used the term "Enabling Technology" to describe technologies that improve body image and function, as some technologies are beyond assisting.[5] Smith (2017) introduced terms like "Occupation-Related Technology", "Therapeutic Technology" and "Environmental Technology" to illustrate the contexts in occupational therapy.[6] The rapid development of "Information and Communication Technology" (ICT) broadens its application in the field of health care and rehabilitation.

Technology is being applied in different fields, including medicine, rehabilitation, domestic living, manufacturing, etc. The range of applications is wide, including wheelchair, visual and hearing aids, as well as domestic and electrical appliances. This article will discuss the following new technologies: virtual reality, telerehabilitation, smart home design and wearable technologies.

VIRTUAL REALITY / AUGMENTED REALITY / MIXED REALITY

Virtual Reality (VR) is a simulation in which computer graphics are used to create a realistic experience in which the feeling of immersion and realistic presence is very high.[7] The key elements in experiencing virtual reality are the virtual world, immersion, interactivity, participant and creator.[8] Augmented Reality (AR) can be defined as a newer technology system in which virtual objects are added to the real world in real-time during the user's experience.[9] AR technology enhances the user's perception and improve their interaction or assist them during the execution of specific tasks. Mixed Reality (MR) integrates the real and virtual environments.

The objective of VR is to allow the users to virtually execute a task while believing that they are executing the task in the real world. This sense of control involves the mind's engagement, which can be reflected in the participant's autonomic body reactions, resulting in changes to their biometrics such as heart rate, respiratory rate, and galvanic skin response.[10] To generate this sensation, the technology must "deceive the brain" by providing it with information identical to the information the brain would perceive in the real environment. The goal of AR is to enrich the perception and knowledge of a real environment by adding digital information relating to this environment. AR provides a higher perception of "being there", which results in higher interaction in cognitive and emotional levels.[11]

VR carries long-standing history of being applied in rehabilitation of stroke patients because of its effect on promoting neuroplasticity. VR enables sensory manipulations that are not possible in the real world, e.g. colour, brightness, location, form, auditory input, temporal, spatial distortions, presenting feedback in different vantage points, or allowing the user to play back movements for feedback or to freeze motion on the screen. These properties might maximise the chances of feedback-induced neural reorganisation.[12] Other attributes supporting VR being able to contribute to motor learning include observational learning, task specificity, abundant repetition of practice, goal-oriented tasks, meaningful simulated scenarios and positive motivational feedback.[13] VR and AR have also been applied in psychotherapy, cognitive training, wheelchair training and behavioural modifications (Fig. 1)

Fig. 1: Home safety training using VR / AR (Reproduced with permission from the photo owner, Dr Ben YIP)

The advances in technology, such as graphics-processing unit, 3D camera, sensors, haptic display, rendering system, headset, etc., have enabled designing of more

complicated VR systems that provide multi-sensory stimulation and accurate measurement of functions. De Cecco (2017) built a domotics apartment with video monitoring by the therapist on a subject's performance during activities of daily living (ADL) assessment. The subject putting on wearable sensors would perform ADL alone in the domotics apartment. The data were then fed to an AR-based Human Machine Interface for clinical evaluation. The particularity of this study is that the patient performing ADL in the real environment naturally without the interference of the therapist, the therapist would then analyse the data from video tracking and wearable sensors in the AR environment to determine the subject's overall performance in ADL.[14]

Xing (2017) developed a system that identified the user's motion intention via forced sensors mounted on the rehabilitation robot so as to conduct therapeutic exercises; the system also stimulated the user's motor nerve by introducing the illusion of immersion in a VR environment. The illusion of immersion was developed by creating virtual exoskeleton robot models which are driven by the user's motion intention and and by reflecting the motion states in real time. The users could participate in the training exercises by themselves and could be fully engaged in the VR environment, so that they could relax, move, and recreate motor neuro-pathways.[15]

Yeh (2018) conducted a study to compare the effects of VR and AR on induced anxiety in the treatment of claustrophobia. Results showed that both VR and AR significantly induced anxiety as reflected by subjective and objective physiological indicators. However, no significant difference was found between the effects of AR and VR. The author concluded that AR was more recommendable than VR given the higher cost of building the scene by VR.[16] The application of VR and AR is becoming more and more mobile in the near future. Greenberg (2017) used a Pass-through camera with generic Google Cardboard Headset to develop an "app" to train stroke patients with lateropulsion. The app provided a dynamic way to adjust the patient's tilted view with varying degrees. The app was also cross-platform working in both iOS devices and Android phones.[17] Alazba (2019) developed the RabbitRun, which was a game with an immersive VR environment for patients to perform low back pain (LBP) exercises in an enjoyable way. The game features and a VR environment helped to distract patients from LBP. The RabbitRun could be played in smartphones with iOS or Android platform, and in low-cost VR devices, such as Google Cardboard.[18]

There is now a new MR application providing assistance to people with low vision. Zhao (2019) developed the SeeingVR, which consisted of a set of 14 tools that enhanced a VR application for people with low vision via visual and audio augmentations. A user could select, adjust, and combine different tools based on their preferences.[19] Present VR systems involve the stimulation of two or three senses: sight, hearing and touch. VR experience could be more enjoyable by adding other senses such as olfactory and gustatory senses. Cheok & Karunanayaka (2018) explored the use of smell and taste technology in internet communication and VR programmes. They envisioned that multisensory digital communication would be possible in TV or VR entertainment in the near future.[20]

TELEREHABILTATION

Telerehabilitation (TR) refers to the delivery of rehabilitation services via ICT. Clinically, this term encompasses a range of rehabilitation services that include assessment, monitoring, prevention, intervention, supervision, education, consultation, and counselling. Just as the services and providers of TR are broad, so are the points of service, which may include healthcare settings, clinics, homes, schools, and community-based worksites.[21] TR applications are also applied by the U.S. military to meet the medical needs of service members in remote and isolated areas.[22]

A review of 61 studies on TR in 2009 showed that 71% of TR applications were successful. Reported outcomes for 51% of the applications appeared to be clinically significant.[23] The potential for patient outcome improvement and cost reduction are particularly high for rehabilitation services that involve prolonged interventions, such as for people with permanent disabilities and chronic conditions.[24] In a study comparing conventional rehabilitation with TR in cardiac patients, TR was found comparable to conventional rehabilitation in motivating patients, preventing psychological distress and improving quality of life. A feasibility study showed that a digital biofeedback system was as effective as conventional in-person home-based rehabilitation for clients after total knee arthroplasty.[25] Another study in Italy showed that TR was more cost-effective than standard rehabilitation for total knee replacement clients.[26]

Occupational therapists in Queensland, Australia developed the "Home QUICK", a technology-enhanced solution for doing home visits. Its implementation resulted in a 50% increase home-visit episodes before discharge from the OT service.[27] In Hong Kong, occupational therapists and physiotherapists in hospitals are developing cognitive and exercise training apps for clients at home.

AMBIENT ASSISTED LIVING / ENHANCED LIVING ENVIRONMENT / SMART HOME

Ambient Assisted Living (AAL) is defined as the use of intelligent systems that assist individuals for a better, healthier and safer life in the preferred living environment. AAL is an emerging multi-disciplinary field intersecting among information and communication technologies, sociological sciences, medical research; AAL aims to develop personalised healthcare and telehealth systems for countering the increasing healthcare burden of an ageing population. Enhanced Living Environment (ELE) refers to AAL settings making use of ICT.[28] With miniaturisation of computer technology, tiny processors and sensors are being integrated into everyday objects and hence facilitating AAL development. The aim of AAL is to improve user health conditions and wellness and to ensure user's social interaction, safety and security. The smart home is regarded as a kind of ELE, where assistive

technology, wearable medical sensors, actuators and modern ICT are applied at the home environment to enable continuous and remote monitoring of elderly health and well-being at a low cost. All sensors and actuators in the smart home are connected to the central communication and decision-making platform through a communication network. All physiological and environmental signals measured are transmitted from sensors to the central computing node by a wireless medium. With such technology in place, a smart home may provide many useful support systems to empower the care of the elderly, e.g. Automated Emergency Call System, Automated Activity and Fall Detection System, Vital Signs Monitoring System, Reminding System, Automated Health Assessment System, etc.[29]

Wearable devices are regarded as electronic computers that can be worn on the body either as an accessory or as a part of clothing. A wearable computer is capable of storing and processing data, and of enabling real-time data to be exchanged between a network and the device. Nowadays, smartphones offer advanced sensors and processors that can track movements and make medical measurements such as heart rate, calories burned, blood sugar or cholesterol.[30] Wearable movement sensors include goniometers for measuring changes in the joint angle; accelerometers for measuring accelerations of body segments; miniature gyroscopes for measuring angular velocity; earth magnetic field sensors for detecting changes in the orientation of a body segment relative to the magnetic North; foot sensors attached to shoes for detecting contact of the foot with the ground; barometric pressure sensors for estimating movement characteristics.[31] In the Automatic Monitoring of Activities using Contactless Sensors (AMACS) project, the sensors used were motion sensors, including cameras, and electricity, water, and gas sensors to record data that reflect activities of daily living (ADL) performance of elderlies. The HEalthLIfe support through COmPrehensive Tracking of individual and Environmental behavioRs (HELICOPTER) project aims at implementing behavioural monitoring features suitable for supporting the early diagnosis of several common age-related diseases. It was based on a holistic vision, merging clinical, wearable and environmental sensors within the interoperable network. Data such as the intensity of motion, bed and chair occupancy and TV usage might reflect feeling tired or lack of energy; data from sensors embedded in bed could measure sleep difficulties or bad breathing; data from refrigerator and cupboard sensors might reflect lack of appetite; data from toilet and bed sensors could measure urination frequency.[32]

The Gaze control system is one of the technologies supporting environmental control for people who lost upper limb control. It comprises infra-red light sources and one or more cameras installed underneath the screen of a communication aid or computer. The infra-red light creates reflection points on the pupils and the cameras film the pupils and transmits the pictures to the software. The software uses the data to determine where the person is currently looking at to initiate the control of the object, such as switching on /off an electric appliance.[33]

Smart textile is a technology using wearable electrodes to measure on-body electrophysiological signals e.g. electrocardiography (ECG), electroencephalography (EEG), galvanic skin response (GSR) and electromyography (EMG). Textile-based electrodes were reported to be as reliable as traditional wet-gel Ag-AgCl electrodes. Textile sensors can also be used for measuring body temperature and movement.[34]

Another new trend in smart home development is the integration of robots in home automation and assistive environments. To achieve this, various sensors, smart appliances, network interfaces, actuators, location devices and robots require synchronised connections seamlessly at various levels. Robotic developments in this area include a robust communication system to enable human-computer interaction, reliable localisation and navigation system, artificial intelligence for robots to learn and improve with experience, as well as provisions for security, privacy and data protection.[35]

The success of a smart home relies on the collection and analysis of data from various dimensions. Internet of Things (IoT) technology will definitely improve the scope of collection and interaction among users, digital devices, household equipment and things in the context. IoT is also an enabler of smart environments and systems, including smart homes, buildings, cities, transport and health care.[36] Digitisation of all areas of life is reshaping traditional delivery of healthcare services. With a trend of massive data being collected, Big Data technology will be useful to assist wise analysis of data and to develop better strategies to improve health care and rehabilitation. IoT will not be possible without the support of fast data transmission. 5G is the fifth generation cellular network technology, which greatly increases the speed of data transmission. With the successful installation of hardware network, the development of VR, Smart Home, IoT and telerehabilitation will be explosive.[37] Once these technologies mature in the market (Fig. 2) , the quality of life of humankind will be greatly improved.

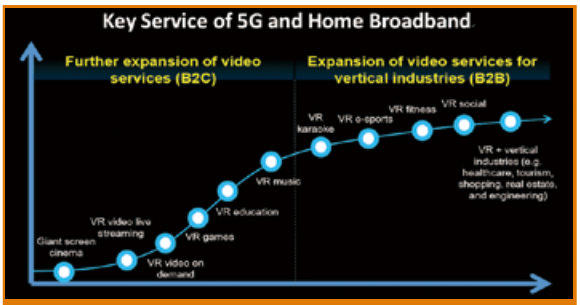

Fig. 2: Key Service of 5G and Home Broadband[37] (Reproduced with permission from Jiang T.)

CONCLUSION

Every technology is assistive to human living with no clear boundary in categorisation. A key mission is to solve problems arising from functional decline in the ageing population. Proper use of technology enhances bodily functions and quality of life. Future development relies on close collaboration of stakeholders including the elderly, caregivers, scholars, scientists and service

providers from various disciplines. This article has touched on promising developments in the fields of virtual reality, telerehabilitation and smart home. The common direction is enhancing affordability and applicability in the home environment .

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My Reflection on Healthy Living - Digital Public Health as A Solution to Global Burden of Disease

Prof Benny Chung-ying ZEE

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Prof Benny Chung-ying ZEE

I used to work in cancer clinical trials specialised in the area of design and analysis to find effective therapies for cancer patients. I still remember the feeling of excitement when we found significant benefits in favour of early thoracic irradiation as compared to late thoracic irradiation as part of combined therapy for limited small-cell lung cancer. This was the first clinical trial with highly significant results in my early career . However, the gain in median progress-free survival and median overall survival was only around 3 to 5 months. In retrospect, the magnitude of gain was embarrassingly small. However, it was already considered a big step forward in those days when very little could be done for treating small cell lung cancer. The more I worked in cancer therapeutic trials, the more I realised the importance of patients' quality of life in addition to efficacy. In fact, it turned out to be clear that baseline health status is an important determinant of outcome. The general population is affected by some of the most common chronic diseases and induce huge economic and healthcare burden to society.

GLOBAL BURDEN OF DISEASE – NEUROLOGICAL DISORDERS, ISCHAEMIC HEART DISEASE AND STROKE

According to the report by the Global Burden of Disease 2013, the three disease areas that carry the highest percentage contribution (%) of age-standardised disability-adjusted life-years (DALYs) are neurological disorders, ischaemic heart disease and stroke[1]. The overall stroke burden in terms of the absolute number of individuals affected and the amount of people with disability from stroke has increased across the globe in both men and women of all ages. Stroke is no longer regarded as a disease of the elderly, as its prevalence is increasing among the young and middle-aged adults likely because of increase in metabolic risk factors such as obesity and diabetes mellitus, especially for individuals aged between 40-64 years in the developing countries. For dementia, a similar problem is also found with more than four times increase in the prevalence rate of dementia being projected in the low and middle-income countries as compared to the high-income countries in the next 30 years. A huge economic burden is being imposed on our society; the estimated worldwide cost of dementia is US$818 billion in 2015. By now, the global cost of dementia is probably above US$1 trillion. In high-income countries, only 20-50% of dementia cases are recognised and documented in primary care settings. A study in India, reflecting the problem being faced in low- and middle-income countries, suggested that 90% of dementia cases remain undiagnosed and approximately three-quarters of people with dementia have not received a diagnosis nor treatment, medical care and organised support[2].

HEALTHY LIFESTYLE IMPROVES BASELINE HEALTH STATUS ESPECIALLY FOR HIGH-RISK SUBPOPULATIONS

What can we do about these problems? The WHO Global Action Plan for the Prevention and Control of Non-communicable Diseases (NCDs) 2013-2020 (resolution WHA66.10) estimated that more than 36 million die annually from NCDs (63% of global deaths), including 14 million people who die relatively young before the age of 70. More than 90% of these premature deaths from NCDs occur in low- and middle-income countries, and could have largely been prevented. Most premature deaths are linked to common risk factors, such as tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol[3]. The key to reverse these NCDs problems is to develop effective health promotion strategies that could empower high-risk individuals to change their lifestyle including quitting smoking, adopting a healthy diet, increasing physical activity, and drinking responsibly. In Hong Kong, we are endowed with a relatively good public health care system in a which both basic and acute care hospitalization costs are covered. Hong Kong residents rely heavily on this system without paying too much attention to keeping up with their own healthy lifestyle. In fact, the majority of Hong Kong residents work extremely hard to make a living, paying rent or mortgage, and providing their children the best education.

THE ROLE OF "DIGITAL PUBLIC HEALTH" IN HEALTH PROMOTION AND DISEASE PREVENTION

The term digital public health was quoted from the Corporate report of Public Health England, "Digital-first public health: Public Health England's digital strategy" to echo the need to use digital innovation and technology to protect and promote health and to reduce inequalities[4]. In the United States, a similar initiative was carried out by Harvard Medical School in the Omada's programme[5]. Omada Health is a digital therapeutics firm focused on preventing obesity-related chronic conditions; it is a perfect example of

how digital health interventions can be used to mitigate the overwhelming burden of chronic diseases. In the CUHK Jockey Club School of Public Health, the Division of Biostatistics has been actively working in the area of digital public health research. The scope of digital public health covers a very wide range of work, focusing on innovation and technology development of methods that promote health through accurate and personalised screening approaches. For example, our Automatic Retinal Image Analysis (ARIA) development began in 2008 when one of our Ph.D students started working on her thesis entitled: "Image Analysis of Retinal Vascular Network Geometry and its Relationship to Cardiovascular Complications"; this thesis was completed in 2011. A U.S. patent was submitted in 2012 and was granted in 2014, and later Mainland China and Taiwan patents were also granted in 2017. Our research team was excited to realise how much information we can obtain from the vasculature of the retina, as subsequently confirmed by our Ph.D students during their research along this line. The evidence accumulated through academic research gradually confirmed our observation that this line of investigation is important to the development of digital public health and should be expanded both in breadth and depth together with the advancement of AI and machine-learning technology. Our first digital public health development was "ARIA-stroke risk" using retinal images to estimate and quantify the risk of stroke in a community setting for health promotion purpose. The study compared stroke patients admitted to the neurology ward with normal subjects serving as control. The results achieved more than 90% sensitivity and specificity[6]. Primary prevention targeting at high-risk patients is by far the most effective strategy to reduce the burden of stroke, and this approach may identify individuals starting to show signs of vascular characteristics associated with stroke from the retinal images. By the end of 2018, we had already screened more than 15,000 subjects in the community. The following are two pilot studies in the community:

- A community stroke-risk assessment study was carried out by the Hong Kong Lutheran Social Services in August 2017. They recruited 300 professional drivers including taxi, mini-van, bus, and truck drivers, and compared their ARIA-stroke risk with 946 control subjects. They did a survey during the assessment and found that professional drivers work long hours with an average of 10-12 hours every day, and 40% spend less than 15 minutes a day on exercise or none at all. The results show that ARIA-stroke risk for professional drivers is 2.28 times higher than the control group, and the professional drivers' group carry a 4.3% moderate ARIA-stroke risk (i.e. ARIA-stroke probability > 0.5), while the community control is around 1% to 2% only. We are familiar with vascular risk factors but other risk factors such as stress or lack of physical activity are not easy to quantify. Nonetheless, a more personalised measure of stroke risk should help to identify the problem on an individual basis for more effective prevention. (http://www.healthviewbio.com/media-coverage/ - 職業司機中風風險較一般人高兩倍, 10 December 2017)
- Another study carried out by Safe Concept e-health Solution, a company specialising in eHealth products, recruited 59 subjects who have completed ARIA-stroke risk and subsequently selected 26 moderately high-risk individuals to participate in a study to evaluate if lifestyle intervention may change the ARIA-stroke risk. The lifestyle intervention includes planned regular health assessment, a weekly schedule of diet and exercise, and proper management of emotion and sleep quality for a 12-week period. Among the 21 individuals who successfully completed both pre- and post- ARIA-stroke risk assessment, 38% had achieved a significant reduction of ARIA-stroke risk (p=0.0107), and half of them (i.e., 19% overall) had a stroke risk reduction of more than 0.1. Although this is a small pilot study, it demonstrates that lifestyle changes hold a clearcut beneficial effect on the vascular characteristics and the health improvement can be measured objectively from ARIA-stroke risk assessment. (http://www.healthviewbio.com/archived/ -「遠離中風 - 健康在我手」先導計劃報告書, Dec 2017)

In a recent academic study, we have shown that retinal images can be used to estimate white matter hyperintensities (WMH) from magnetic resonance imaging (MRI) on the brain in community-dwelling elderly without stroke or dementia. For 180 subjects who have their WMH volume estimated by brain MRI, age-related WMH grading (0-1 vs 2-3) was carried out for estimating the risk of cerebral small vessel disease (SVD). A sensitivity and specificity of 93% and 98% respectively were achieved[7]. Individuals with cerebral SVD carry higher risk of cognitive decline, stroke and dementia. Fortunately, there is increasing scientific evidence showing that WMH and SVD are more dynamic than we originally thought: WMH may increase due to ageing and other risk factors, but it may also decrease due to lifestyle changes, weight control, proper nutrition and diet. Early detection and intervention will be more effective than waiting for onset of symptoms. Modification of traditional cardiovascular risk factors and a healthy lifestyle are currently considered the most important prophylactic and therapeutic approaches for SVD[8].

MOLECULAR JUSTIFICATION FOR LIFESTYLE CHANGES AND STROKE RISK

We have known for a long time that only 5-10% of all cancer cases are attributed to genetic defects, the remaining 90-95% are due to the environment and lifestyle. The lifestyle factors in cancer include cigarette smoking, diet (e.g. fried foods, red meat, preserved food), alcohol consumption, sun exposure, environmental pollutants, infections, stress, obesity, and physical inactivity[9]. For diabetes prevention, the landmark study based on a randomised controlled trial has shown that lifestyle modification programmes with the goals of at least a 7 percent weight loss and at least 150 minutes of physical activity per week were significantly better than placebo and metformin use. The lifestyle intervention reduced the diabetes incidence by 58% (95% CI: 48%-66%) and the use of metformin by

31% (95% CI: 17%-43%), as compared with placebo; the lifestyle intervention was significantly more effective than metformin use[10].

As a biostatistician and a cancer clinical trialist, I used to have a strong bias towards the importance of drug and therapeutics. The baseline health status was only being looked at as random variation. However, the advancement of molecular medicine has changed my view in the past decade. In stroke research, telomere length has been shown to significantly correlate with various cardiovascular diseases including stroke. For example, a study which included 150 patients with ischaemic stroke as case-group, 150 siblings of patients free of stroke (sibling-control-group) and 150 healthy individuals as normal-control-groups, showed a significant decrease in telomere length in the case-group compared with sibling-control-group (0.92±0.77 vs 1.68±1.24, p<0.001) and normal-control-group (0.92±0.77 vs 1.95±1.07, p<0.001), but no significant difference was found between sibling-control-group and normal-control-group (p=0.330). Shorter telomere length was independently associated with hypertension (p=0.029, OR=2.189, 95% CI: 1.084–4.421), recent social pressure (p=0.001, OR=3.121, 95% CI: 1.597–6.101), age (p=0.004, OR=1.055, 95% CI: 1.017–1.093), HDL (p=0.022, OR=0.227, 95% CI: 0.064–0.810) and diabetes (p=0.018, OR=3.174, 95% CI: 1.221–8.252)[11]. In addition to the association between telomere length and various diseases, there are more and more evidence showing that lifestyle factors such as stress and dietary fibre have a direct effect on telomere length[12, 13]. These results have provided the molecular justification that lifestyle changes have an impact on cardiovascular diseases, including stroke, at cellular and molecular levels.

CONCLUSION

We know that the prevalence of neurological disorders, ischaemic heart disease and stroke are on the rise in the coming years, especially in the developing countries. Health issues such as stroke and small vessel disease are silently affecting us in many sub-populations partly due to busy lifestyle, stress, pollution and many other environmental factors on top of known genetics factors. We need to pay attention to having a healthy lifestyle at a very early stage in order to achieve good health and reduce the risk of chronic diseases. Innovation and technology development in the area of digital public health provides one aspect of the solutions. We should be able to take advantage of "digital" health-promotion and "personalised" disease-prevention strategy using advanced technology and to take timely action for lifestyle modification in order to achieve a better health status, and more likely to reduce healthcare costs for our community.

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Federation Sports Day 2019

Dr Chun-kong NG

2nd Vice-President,
The Federation of Medical Societies of Hong Kong

Dr Chung-kong NG

The Federation Sports Day 2019 was held at the Ying Wah College on 7 April & 9 June 2019.

This is the year table tennis tournament is introduced into our Sports Day. There were 8 soccer, 7 basketball and 4 table tennis teams that participated in the tournament this year, including The Federation Invitation Team, The Federation EXCO Team, The Hong Kong Medical Association, Hong Kong Association of Sports Medicine and Sports Science, Bupa Asia Ltd, AstraZeneca Hong Kong, Roche Hong Kong, Procter & Gamble Hong Kong, Pfizer Corporation Hong Kong, Hong Kong Urological Association and Jacobson Pharma Corporation.

We congratulate the winning teams and express our sincere gratitude for the supports from all the participating teams and guests. We look forward to seeing you again at the Federation Sports Day in the coming year!

The results are as follows:

Soccer Five Tournament		
Champion	:	The Federation Invitation Team
1st Runner Up	:	The Hong Kong Medical Association
2nd Runner Up	:	Roche Hong Kong
Top Scorers	:	WONG Ho Tung Herman, The Hong Kong Medical Association

Basketball Tournament		
Champion	:	Pfizer Corporation Hong Kong
1st Runner Up	:	Jacobson Pharma Corporation
2nd Runner Up	:	Roche Hong Kong
Top Scorers	:	WONG Kwan Lun, Jacobson Pharma Corporation

Table Tennis Tournament		
Champion	:	The Hong Kong Medical Association
1st Runner Up	:	Pfizer Corporation Hong Kong

New member: Hong Kong Society for Paediatric Rheumatology

Paediatric Rheumatology – The Budding Paediatric Subspecialty in Hong Kong

Paediatric rheumatologists are paediatricians who care for children with autoimmune diseases or diseases where the immune system attacks the body. The subspecialty is one of the newest and least populated of pediatric subspecialties in western medicine, and it only came slowly to the attention of the medical societies after the Second World War. As Eric Bywaters, one of the earliest founders in the field, commented at the First American Rheumatism Association in 1976, Paediatric Rheumatology was one of the latest arrivals and one of the smallest in paediatric subspecialties.

There is virtually no mention of rheumatism or rheumatic conditions in children before the year 1800. Rheumatic fever or, as it had been called, "acute rheumatism" since the ancient world, was first recognised in 1800 by George Frederic Still. He first mentioned a child with rheumatic nodule and described its association with heart disease, chorea, and sore throat. Between 1940 and 1960, chronic arthritis in children was a condition confused in its relationship to adult rheumatoid arthritis, in its diversity in disease manifestations, and in its appropriate nomenclature. The condition was initially referred to as Still's disease in honour of George Frederic Still and later as juvenile rheumatoid arthritis in the United States, and as juvenile chronic arthritis in England.

With the realisation that the rheumatic diseases are distinct in children, the burgeoning of new technology, and the advent of modern medications, the organisation of Pediatric Rheumatology as a subspecialty blossomed since the 1970s. At present, it is a developing subspecialty in many countries and continues to thrive with the support from two large international networks i.e. the Pediatric Rheumatology Collaborative Study Group (PRCSG) and the Paediatric Rheumatology International Trials Organisation (PRINTO). They promoted the implementation of legislation and facilitated several successful controlled studies on the safety and the efficacy of new and old drugs in paediatric rheumatic diseases. They bring in a new era especially in the assessment of drug safety and efficacy in children.

Under the influence of international development, a group of Hong Kong paediatricians, who were interested in children with rheumatological conditions first met in 2010. We started with sharing our experiences in managing these children. Finally, the Hong Kong Society for Paediatric Rheumatology was established in 2012. The Society is active in promoting the health of this group of patients through public education such as talks to professionals and patient groups, and through collaboration and studies among Hospital Authority departments. We are committed to serving this once "overlooked minority." This year, we are honoured to become a member of the Federation of Medical Societies of Hong Kong. We look forward for better collaboration with other professional bodies, and in the era of biologics, we hope to achieve better patient outcomes as well as significant impact on their future lives.

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The Hong Kong Society For Paediatric Rheumatology. The photo was taken after the interhospital meeting on 11st July, 2019. (from left-to right)
Dr Luk Chi Kong David (Council member), Dr Chan Kwai Yu Winnie (President), Dr Yeung Hoi Man Roanna (Hon. Treasurer), Dr.Ho Chi Hang Assunta (Vice-President), Dr Kong Sum Yi (Hon. Secretary)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	★Certificate Course on Renal Medicine 2019 3	★HKMA Shatin Community Network - Common Papulosquamous Lesions in Quiz Format ★HKMA Yau Tsim Mong Community Network - Update in Management of T2DM in Geriatric 4	★The Hong Kong Society of Children Neurology and Development Paediatrics (HKCNDP) Annual Scientific Meeting 2019 on "Movement Disorders in Children and Advances in Treatment" ★Refresher Course for Health Care Providers 2019/2020 - Back Pain Assessment and Management 5
★The Hong Kong Society of Children Neurology and Development Paediatrics (HKCNDP) Annual Scientific Meeting 2019 on "Movement Disorders in Children and Advances in Treatment" 6	7	★HKMA-HKS&H CME Programme 2019-2020 - Update on the Diagnosis and Management of Spondyloarthritis ★HKMA Tai Po Community Network - 1) What are the Rashes on My Face? 2) Dispensing Steroids and Antihistamine in GP Clinic ★FMSHK Officers' Meeting ★HKMA Council Meeting 8	★The Hong Kong Neurosurgical Society Monthly Academic Meeting –To be confirmed ★(Live) HKMA Central, Western & Southern Community Network: Certificate Course on Dermatology (Session 3) -Biological Therapy for Moderate to Severe Atopic Dermatitis ★HKMA New Territories West Community Network: Clinical Approach to Renal Problems ★Certificate Course on Respiratory Medicine 2019 9	★Certificate Course on Renal Medicine 2019 10	★HKMA and Hong Kong Society of Biological Psychiatry - Certificate Course in Psychiatry for Community Primary Care Doctors (Session 8) - Sleep, Sexual and Cognitive Problem: Evaluation and Management ★HKMA Shatin Community Network - Update in Management of Lung Cancer 11	12
★HKMA Swimming Gala 2019 13	★Certificate Course on Best Practices in Quality of Life Evaluation and Assessments 2019 14	★HKMA Yau Tsim Mong Community Network - Atopic Eczema: Update in Management 15	16	★Hong Kong Medical Association & Hong Kong Paediatrics Nurse Association - Symposium on Meningococcal B Management 1) Local epidemiology and recommendation on meningococcal B disease 2) Meningococcal B in worldwide and introducing new generation of solutio ★Certificate Course on Practical Obstetric Ultrasonography 2019 17	★Certificate Course on Palliative Medicine for Health Care Workers 2019 18	★Seminar on Infectious Disease 19
★Disfiguring Facial Dermatosis: East Meets West (主題: 面部皮膚病: 中西合奏) 20	★FMSHK Executive Committee Meeting ★Certificate Course on Best Practices in Quality of Life Evaluation and Assessments 2019 21	22	★(Live) HKMA Central, Western & Southern Community Network: Certificate Course on Dermatology (Session 4) -Diagnosis and Management of Psoriasis ★MPS Workshop - Achieving Safer and Reliable Practice ★Certificate Course on Difficult Communications in Healthcare 2019 23	★MPS Workshop - Building Resilience and Avoiding Burnout ★Certificate Course on Practical Obstetric Ultrasonography 2019 24	★HKMA Shatin Community Network - Clinical Use of PCSK-9 Therapy: not Confined to Specialists ★Certificate Course on Palliative Medicine for Health Care Workers 2019 25	★Endocrinology, Diabetes & Metabolism Hong Kong (EDM HK) 2nd Annual Meeting 26
★Endocrinology, Diabetes & Metabolism Hong Kong (EDM HK) 2nd Annual Meeting ★HKMA Family Sports Day 2019 27	★Certificate Course on Best Practices in Quality of Life Evaluation and Assessments 2019 28	★HKMA Tai Po Community Network - 1. What is the Correlation between Influenza and Chronic Diseases?; 2. Clinic Management of Injection Control for Suspected Influenza Case in the Clinic 29	★MPS Workshop - Mastering Difficult Interactions with Patients ★Certificate Course on Difficult Communications in Healthcare 2019 30	★MPS Workshop - Mastering Shared Decision Making ★HKMA New Territories West Community Network – Advance in Lung Cancer Treatment - Oncologist Perspective ★HKMA Kowloon East Community Network – Management of Benign Breast Conditions ★Certificate Course on Practical Obstetric Ultrasonography 2019 31		

Date / Time	Function	Enquiry / Remarks
3 THU 7:00PM	**Certificate Course on Renal Medicine 2019** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Vienna LAM Tel: 2527 8898
4 FRI 1:00 PM	**HKMA Shatin Community Network - Common Papulosquamous Lesions in Quiz Format** Organiser: HKMA Shatin Community Network; Speaker: Dr. CHAN Kam Tim, Michael; Venue: Diamond Room B, 2/F, Royal Park Hotel, 8 Pak Hok Ting Street, Shatin	Ms. Candice TONG Tel: 2527 8285 1 CME Point
1:00 PM	**HKMA Yau Tsim Mong Community Network - Update in Management of T2DM in Geriatric** Organiser: HKMA Yau Tsim Mong Community Network; Speaker: Dr. WONG Tak Cheung; Venue: Crystal Ballroom, 2/F, The Cityview Hong Kong, 23 Waterloo Road, Kowloon	Ms. Candice TONG Tel: 2527 8285 1 CME Point
5 SAT 1:30 PM (6 Oct 10:00AM)	**The Hong Kong Society of Children Neurology and Development Paediatrics (HKCNDP) Annual Scientific Meeting 2019 on "Movement Disorders in Children and Advances in Treatment"** Organiser: The Hong Kong Society of Children Neurology and Development Paediatrics; Venue: Lecture Theatre, G/F, Block M, Queen Elizabeth Hospital; Registration: http://hkcndp.org/cmst/content/scientific_asm.php	Meeting Secretariat Ms. Gloria CHEUNG Tel: 2527 8898
2:30 PM	**Refresher Course for Health Care Providers 2019/2020 - Back Pain Assessment and Management** Organiser: The Hong Kong Medical Association; Speaker: Dr. KL TUNG; Venue: Lecture Halls A&B, 4/F, Block G, Wong Tai Sin Hospital	Ms. Clara TSANG Tel: 2354 2440 2 CME Point
8 TUE 1:00 PM	**HKMA-HKS&H CME Programme 2019-2020 - Update on the Diagnosis and Management of Spondyloarthritis** Organiser: Hong Kong Medical Association & Hong Kong Sanatorium & Hospital; Speaker: Dr. CHEUNG Tsang, Tommy; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	HKMA CME Dept Tel: 2527 8285 1 CME Point
1:00 PM	**HKMA Tai Po Community Network - 1) What are the Rashes on My Face? 2) Dispensing Steroids and Antihistamine in GP Clinic** Organiser: HKMA Tai Po Community Network; Speaker: Dr. LEE Tsz Yuen; Dr. CHOW Chun Kwan, John; Venue: Jade Garden, Shop 302, 3/F, Tai Wo Plaza Phase 1, 12 Tai Wo Road, Tai Wo	Ms. Candice TONG Tel: 2527 8285 2 CME Point
8:00 PM	**FMSHK Officers' Meeting** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Gallop, 2/F, Hong Kong Jockey Club Club House, Shan Kwong Road, Happy Valley, Hong Kong	Ms. Nancy CHAN Tel: 2527 8898
9:00 PM	**HKMA Council Meeting** Organiser: The Hong Kong Medical Association; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	Ms. Christine WONG Tel: 2527 8285
9 WED 7:30 AM	**The Hong Kong Neurosurgical Society Monthly Academic Meeting –To be confirmed** Organiser: Hong Kong Neurosurgical Society; Speaker(s): Dr HUNG Sze Lok Remy Chairman: Dr PO Yin Chung; Venue: Seminar Room, G/F, Block A, Queen Elizabeth Hospital	CME Accreditation College: 1.5 points College of Surgeons of Hong Kong Enquiry: Dr. WONG Sui To Tel: 2595 6456 Fax. No.: 2965 4061
1:00 PM	**(Live) HKMA Central, Western & Southern Community Network: Certificate Course on Dermatology (Session 3) -Biological Therapy for Moderate to Severe Atopic Dermatitis** Organiser: HKMA Central, Western & Southern Community Network; Speaker: Dr. KWAN Chi Keung; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	Miss Antonia LEE Tel: 2527 8285 1 CME Point
1:00 PM	**HKMA New Territories West Community Network: Clinical Approach to Renal Problems** Organiser: HKMA New Territories West Community Network; Speaker: Dr. LUK Yee, Andrew; Venue: SB 1036, Tuen Mun Hospital, Tsing Chung Koon Rd, Tuen Mun	Miss Antonia LEE Tel: 2527 8285 1 CME Point
7:00PM	**Certificate Course on Respiratory Medicine 2019** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Vienna LAM Tel: 2527 8898
10 THU 7:00 PM	**Certificate Course on Renal Medicine 2019** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Vienna LAM Tel: 2527 8898
11 FRI 1:00 PM	**HKMA and Hong Kong Society of Biological Psychiatry - Certificate Course in Psychiatry for Community Primary Care Doctors (Session 8) - Sleep, Sexual and Cognitive Problem: Evaluation and Management** Organiser: Hong Kong Medical Association, Hong Kong Society of Biological Psychiatry; Speaker: Dr. MAK Kai Lok, Dr. PAO Sze Yuan & Prof. TANG Siu Wa; Venue: Tang Room, 3/F, Sheraton Hong Kong Hotel & Towers, 20 Nathan Road, Kowloon	CME Accreditation College: 1.5 points College of Surgeons of Hong Kong Enquiry: Name: Dr. WONG Sui To Tel: 2595 6456 Fax. No.: 2965 4061
1:00 PM	**HKMA Shatin Community Network - Update in Management of Lung Cancer** Organiser: HKMA Shatin Community Network; Speaker: Dr. LI Yu Chung, Jacky; Venue: Diamond Room, 2/F, Royal Park Hotel, 8 Pak Hok Ting Street, Shatin	Ms. Candice TONG Tel: 2527 8285 1 CME Point
13 SUN 11:00 AM	**HKMA Swimming Gala 2019** Organiser: The Hong Kong Medical Association; Venue: The Hong Kong Polytechnic University	Miss Sinn TANG Tel: 2527 8285
14 MON 7:00PM	**Certificate Course on Best Practices in Quality of Life Evaluation and Assessments 2019** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Vienna LAM Tel: 2527 8898
15 TUE 1:00 PM	**HKMA Yau Tsim Mong Community Network - Atopic Eczema: Update in Management** Organiser: HKMA Yau Tsim Mong Community Network; Speaker: Dr. WAT Yee Mun, Mildred; Venue: Crystal Ballroom, 2/F, The Cityview Hong Kong, 23 Waterloo Road, Kowloon	Ms. Candice TONG Tel: 2527 8285 1 CME Point

Date / Time	Function	Enquiry / Remarks
17 THU 6:30 PM	**Hong Kong Medical Association & Hong Kong Paediatrics Nurse Association - Symposium on Meningococcal B Management 1) Local epidemiology and recommendation on meningococcal B disease 2) Meningococcal B in worldwide and introducing new generation of solutio** Organiser: Hong Kong Medical Association & Hong Kong Paediatrics Nurse Association; Speaker: Dr. KWAN Yat Wah; Prof. Peter RICHMOND; Venue: Sheraton Hotel, 20 Nathan Road, Kowloon, Hong Kong	HKMA CME Dept Tel: 2527 8285 2 CME Point
7:00 PM	**Certificate Course on Practical Obstetric Ultrasonography 2019** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Vienna LAM Tel: 2527 8898
18 FRI 7:00 PM	**Certificate Course on Palliative Medicine for Health Care Workers 2019** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Vienna LAM Tel: 2527 8898
19 SAT 2:00 PM	**Seminar on Infectious Disease** Organiser: Hong Kong Medical Association & Hong Kong Society for Infectious Diseases; Speaker: Dr. WONG Wai Yin, Samson, Dr. CHAN Shuk Ying, Helen; Dr. WONG Chun Kwan, Bonnie; Venue: Lecture Theatre, 7/F, Block H, Princess Margaret Hospital, 2-10 Princess Margaret Hospital Road, Lai Chi Kok, Kowloon	HKMA CME Dept Tel: 2527 8285 3 CME Point
20 SUN 2 PM – 5 PM	**Disfiguring Facial Dermatosis: East Meets West (主題: 面部皮膚病: 中西合奏)** Organiser: Association for Integrative Aesthetic Medicine Hong Kong; Venue: The Royal Garden Hotel (The Palace Room, B1) (1) Update on light based therapy for facial skin condition Prof. CHAN Hin Lee, Henry (2) Approach for management of Facial Dermatosis Dr. HO King Man (3) Acne and Rosacea : CM pathogenesis and management Prof. FU Wen Shu (4) Facial eczema : management tips from CM practitioner Prof. LIN Zhi Xiu **Free Registration & Coffee Break ** (first-come-first-served) ****with CME Points*****	Enquiry & Registration: Contact: Ms. Toby YU Tel: 3575 8600 Email of application : aiam_hk@yahoo.com
21 MON 7:00 PM	**FMSHK Executive Committee Meeting** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Nancy CHAN Tel: 2527 8898
7:00 PM	**Certificate Course on Best Practices in Quality of Life Evaluation and Assessments 2019** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Vienna LAM Tel: 2527 8898
23 WED 1:00 PM	**(Live) HKMA Central, Western & Southern Community Network: Certificate Course or Dermatology (Session 4) -Diagnosis and Management of Psoriasis** Organiser: HKMA Central, Western & Southern Community Network; Speaker: Dr. CHANG Mee, Mimi; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	Miss Antonia LEE Tel: 2527 8285 1 CME Point
6:30 PM	**MPS Workshop - Achieving Safer and Reliable Practice** Organiser: Hong Kong Medical Association & Medical Protection Society; Speaker: Dr. CHENG Ngai Shing, Justin; Venue: The Cityveiw, 23 Waterloo Road, Kowloon, Hong Kong	HKMA CME Dept Tel: 2527 8285 1 CME Point
7:00 PM	**Certificate Course on Difficult Communications in Healthcare 2019** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Vienna LAM Tel: 2527 8898
24 THU 6:30 PM	**MPS Workshop - Building Resilience and Avoiding Burnout** Organiser: Hong Kong Medical Association & Medical Protection Society; Speaker: Dr. FUNG Shu Yan, Anthony; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	HKMA CME Dept Tel: 2527 8285 3 CME Point
7:00 PM	**Certificate Course on Practical Obstetric Ultrasonography 2019** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Vienna LAM Tel: 2527 8898
25 FRI 1:00 PM	**HKMA Shatin Community Network - Clinical Use of PCSK-9 Therapy: not Confined to Specialists** Organiser: HKMA Shatin Community Network; Speaker: Dr. CHAN Nor, Norman; Venue: Diamond Room, 2/F, Royal Park Hotel, 8 Pak Hok Ting Street, Shatin	Ms. Candice TONG Tel: 2527 8285 1 CME Point
7:00 PM	**Certificate Course on Palliative Medicine for Health Care Workers 2019** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Vienna LAM Tel: 2527 8898
26 SAT 9:00 AM (27)	**Endocrinology, Diabetes & Metabolism Hong Kong (EDM HK) 2nd Annual Meeting** Organizers: Department of Medicine, University of Hong kong; Queen Mary Hospital; Venue: S421-430, Hong Kong Convention & Exhibition Centre, Wanchai, HK	Ms Daisy SO Tel: 9073 7301
27 SUN 11:00 AM	**HKMA Family Sports Day 2019** Organiser: The Hong Kong Medical Association; Venue: HKU Stanley Ho Sports Centre Complex, 10 Sha Wan Dr, Sandy Bay, Hong Kong	Miss Sinn TANG Tel: 2527 8285
28 MON 7:00PM	**Certificate Course on Best Practices in Quality of Life Evaluation and Assessments 2019** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Vienna LAM Tel: 2527 8898
29 TUE 1:00 PM	**HKMA Tai Po Community Network - 1. What is the Correlation between Influenza and Chronic Diseases?; 2. Clinic Management of Injection Control for Suspected Influenza Case in the Clinic** Organiser: HKMA Tai Po Community Network; Speaker: Dr. IP Pui Seung; Dr. CHOW Chun Kwan, John; Venue: Jade Garden, Shop 302, 3/F, Tai Wo Plaza Phase 1, 12 Tai Wo Road, Tai Wo	Ms. Candice TONG Tel: 2527 8285 1 CME Point

Date / Time	Function	Enquiry / Remarks
30 WED 6:30 PM	**MPS Workshop - Mastering Difficult Interactions with Patients** Organiser: Hong Kong Medical Association & Medical Protection Society; Speaker: Dr. CHENG Ngai Shing, Justin; Venue: The Cityveiw, 23 Waterloo Road, Kowloon, Hong Kong	HKMA CME Dept Tel: 2527 8285 3 CME Point
7:00 PM	**Certificate Course on Difficult Communications in Healthcare 2019** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Vienna LAM Tel: 2527 8898
31 THU 6:30 PM	**MPS Workshop - Mastering Shared Decision Making** Organiser: Hong Kong Medical Association & Medical Protection Society; Speaker: Dr. FUNG Shu Yan, Anthony; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, HK	HKMA CME Dept Tel: 2527 8285 3 CME Point
1:00 PM	**HKMA New Territories West Community Network – Advance in Lung Cancer Treatment - Oncologist Perspective** Organiser: HKMA-New Territories West Community Network; Speaker: Dr. LEE Kun Min; Venue: Atrium Function Rooms, Lobby Floor, Hong Kong Gold Coast Hotel, 1 Castle Peak Road, Gold Coast, HK	Miss Antonia LEE Tel: 2527 8285 1 CME Point
1:00 PM	**HKMA Kowloon East Community Network – Management of Benign Breast Conditions** Organiser: HKMA Kowloon East Community Network; Speaker: Dr. CHENG Yuh Meei; Venue: V Cuisine, 6/F, Holiday Inn Express Hong Kong Kowloon East, 3 Tong Tak Street, Tseung Kwan O	Miss Antonia LEE Tel: 2527 8285 1 CME Point
7:00 PM	**Certificate Course on Practical Obstetric Ultrasonography 2019** Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Vienna LAM Tel: 2527 8898

Answers to Radiology Quiz

Answers:

1. There is a diffuse reduction in cerebral parenchymal attenuation. Cerebral sulci are effaced. The basal cisterns appear relatively hyperdense. No sulcal hyperdensity or extra-axial collections. No midline shift.

2. Pseudosubarachnoid haemorrhage.

3. The most common cause is severe cerebral oedema, where there is a reduction in parenchymal attenuation and engorgement of superficial venous structures, resulting in relative hyperattenuation of the basal cisterns. Cerebral oedema of this extent is usually due to global hypoxic-ischaemic injury or fulminant toxic/metabolic encephalopathy.

   Other causes of the pseudosubarachnoid haemorrhage appearance include severe meningitis and intrathecal contrast administration.

4. True acute subarachnoid haemorrhage is the main differential diagnosis.

Dr Frank WONG
MBBS (HK), FRCR (UK)
Resident, Department of Radiology, Queen Mary Hospital

Certificate Course for Doctors, Midwives, Nurses, Radiographers & Other Healthcare Professionals who preferably have a basic knowledge of obstetric ultrasound

Course No. C339 | CME/CNE Course

Certificate Course on
Practical Obstetric Ultrasonography 2019

Jointly organised by

The Federation of Medical Societies of Hong Kong

Hong Kong Society for Ultrasound in Medicine

Date	Topics	Speakers
17 Oct	New algorithms in prenatal diagnosis	Dr. Wing-cheong LEUNG Consultant Obstetrician & Chief-of-service, Department of O&G, Kwong Wah Hospital
24 Oct	Ultrasonography of early pregnancy complications including scar pregnancy	Dr. Vincent Yuk-tong CHEUNG Clinical Associate Professor in Obstetrics & Gynaecology The University of Hong Kong
31 Oct	Ultrasonography of placenta, liquor, membranes and cervix	Dr. Tak-yuen FUNG Chief of Service, Obstetrics & Gynaecology Hong Kong Baptist Hospital
7 Nov	Commonly missed abnormalities in routine scan	Dr. Meliza Choi-wah KONG Consultant, Obstetrics & Gynaecology United Christian Hospital
14 Nov	Tips in performing fetal echocardiography	Dr. Wan-pang CHAN Honorary Consultant in Obstetrics & Gynaecology Hong Kong Sanatorium and Hospital
28 Nov	Ultrasonography of craniofacial abnormalities	Dr. Kwok-yin LEUNG President, Hong Kong Society for Ultrasound in Medicine

Date : 17, 24, 31 October and 7, 14. 28 November 2019 (Thursday, skip 21 Nov)
Time : 7:00 p.m. – 8:30 p.m.
Venue : Lecture Hall, 4/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong
Course Fee : HK$750 (6 sessions)
Enquiry : The Secretariat of The Federation of Medical Societies of Hong Kong
Tel.: 2527 8898 Fax: 2865 0345 Email: info@fmshk.org

Please download the application form at www.fmshk.org

Certificate Course for Doctors, Nurses, Paramedics and Allied Health Workers Course No. C342 | CME/CNE Course

Certificate Course on
Difficult Communications in Healthcare 2019

Jointly organised by

The Federation of Medical Societies of Hong Kong

Hong Kong Society for Healthcare Mediation

Date	Topics	Speakers
23 Oct	Interprofessional Communications	Dr Danny LEE 李偉雄醫生 Specialist in General Surgery
30 Oct	Open Disclosure & Dealing with Angry Public	Dr Kai Ming CHOW 周啟明醫生 Specialist in Nephrology
6 Nov	Patient Complaints	Dr Ludwig TSOI 蔡振興醫生 Specialist in Emergency Medicine
13 Nov	Presentation in Disciplinary Hearing	Dr Robert LAW 羅致廉醫生 Specialist in Obstetrics & Gynaecology
20 Nov	Communication Problems	Dr Sandy CHAN 陳潔瑩博士 Registered Nurse
27 Nov	Breaking Bad News	Dr Kah-lin CHOO 俞佳琳醫生 Specialist in Respiratory Medicine

Dates : 23, 30 October & 6, 13, 20, 27 November, 2019 (Every Wednesday)
Time : 7:00 pm – 8:30 pm
Venue : Lecture Hall, 4/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong
Course Fee : HK$750 (6 sessions)
Enquiry : The Secretariat of The Federation of Medical Societies of Hong Kong
Tel: 2527 8898 Fax: 2865 0345 Email: info@fmshk.org

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Chronic Disease Patients — High Risk of Pneumonia[1#]

Prevenar 13®

Pneumococcal polysaccharide conjugate vaccine (13-valent, adsorbed)

Advanced Protection to Your Patients[2*]

Elderly aged 65+ with chronic diseases are more likely to develop pneumococcal pneumonia:

DIABETES

2.8 folds[1]

CHRONIC CVD[†]

3.8 folds[1]

CHRONIC LUNG DISEASE

7.7 folds[1]

[#] Compared with healthy individuals aged 65 or above

[*] Conjugate vaccine induces immune memory and provides long-term protection[3,4]

[†] Chronic cardiovascular disease

References: 1. Shea KM, et al. Open Forum Infect Dis. 2014. doi:10.1093/ofid/ofu024. 2. Pneumococcal polysaccharide conjugate vaccine, 13-valent adsorbed Prescribing Information. Pfizer Corporation Hong Kong Limited. (Version Dec 2015). 3. Pollard AJ et. al., Nature Reviews. Immunology. 2009; 9: 213-220. 4. Goldblatt D. Clin Exp Immunol. 2000; 119:1-3.

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Vaccination Helps Protect against Pneumococcal Pneumonia[2] — Your Role is KEY

PREVENAR 13® ABBREVIATED PACKAGE INSERT **1. TRADE NAME:** PREVENAR 13® **2. PRESENTATION:** A homogeneous white suspension for injection. **3. INDICATIONS:** Active immunisation for the prevention of pneumococcal disease caused by Streptococcus pneumoniae serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F and 23F in adults and children aged more than 6 weeks of age. The use of Prevenar 13 should be guided by official recommendations. **4. DOSAGE:** Intramuscular administration only. The immunisation schedules should be based on official recommendations. Infants aged 6 weeks - 6 months: The primary infant series consists of three doses, with the first dose usually given at 2 months of age and with an interval of at least 1 month between doses. The first dose may be given as early as six weeks of age. A fourth (booster) dose is recommended after 12 months of age, and at least 2 months after the third dose. Unvaccinated children aged 7-11 months: 3 doses. Unvaccinated children aged 12-23 months: 2 doses. Unvaccinated children aged 24 months to 17 years: One single dose. Adults: One single dose. For more dosage information, please refer to the full package insert. **5. CONTRAINDICATIONS:** Hypersensitivity to the active substances or to any of the excipients, or to diphtheria toxoid. Allergic reaction or anaphylactic reaction following prior administration of Prevenar 13-valent. **6. WARNINGS & PRECAUTIONS:** Not for intravenous or intravascular administration; as with other vaccines, the administration should be postponed in subjects suffering from acute moderate or severe febrile illness; should not be given to individuals with thrombocytopenia or any coagulation disorder that would contraindicate intramuscular injection unless the potential benefit clearly outweighs the risk of administration; will not protect against Streptococcus pneumoniae serotypes other than those included in the vaccine nor other microorganisms that cause invasive disease, pneumonia, or otitis media; may not protect all individuals receiving the vaccine from pneumococcal disease. Individuals with impaired immune responsiveness may have reduced antibody response to active immunisation. Safety and immunogenicity data for Prevenar 13 are available for certain high-risk groups such as children and adolescents with sickle cell disease and children and adults with HIV infection or with a haematopoietic stem cell transplant. Data are not currently available for individuals in other immunocompromised groups (e.g., malignancy, or nephrotic syndrome) and vaccination should be considered on an individual basis. Children below 2 years old should receive the appropriate-for-age Prevenar 13 vaccination series. The potential risk of apnoea and the need for respiratory monitoring for 48-72h should be considered when administering the primary immunisation series to very premature infants (born ≤ 30 weeks of gestation), and particularly for those with a previous history of respiratory immaturity. Antipyretic treatment should be initiated according to local treatment guidelines. Prophylactic antipyretic medication is recommended for children with seizure disorders or with a prior history of febrile seizures and for all children receiving Prevenar 13 simultaneously with vaccines containing whole cell pertussis. **7. INTERACTIONS:** Infants and children aged 6 weeks to 5 years: Can be given with any of the following vaccine antigens, either as monovalent or combination vaccines: diphtheria, tetanus, acellular or whole cell pertussis, Haemophilus influenzae type b, inactivated poliomyelitis, hepatitis B, meningococcal serogroup C, measles, mumps, rubella and varicella. In clinical trials, where there was concomitant administration of Prevenar 13 and rotavirus vaccine, no change in the safety profiles of these vaccines was observed. When Prevenar 13 is administered concomitantly with Infanrix hexa (DTaP HBV-IPV/Hib), the rates of febrile reactions are similar to those seen with concomitant administration of Prevenar (7-valent) and Infanrix hexa. Children 6 to 17 years of age and adults 18 to 49 years of age: No data are currently available regarding concomitant use with other vaccines. Adults aged 50 years and older: May be administered concomitantly with seasonal trivalent inactivated influenza vaccine. Different injectable vaccines should always be given at different injection sites. **8. PREGNANCY AND LACTATION:** Prevenar 13 is not indicated or recommended for use in pregnant women and has not been evaluated for potential harmful effects during pregnancy in humans. Safety during lactation has not been established. **9. SIDE EFFECTS:** Children: Decreased appetite; fever; irritability; drowsiness/increased sleep; restless sleep/decreased sleep; any vaccination-site erythema, induration/swelling or pain/tenderness; vaccination-site pain/tenderness interfering with movement; diarrhoea, vomiting; rash. Children and adolescents aged 5 to 17 years of age: Decreased appetite; irritability; any vaccination-site erythema; induration/swelling or pain/tenderness; drowsiness/increased sleep; restless sleep/decreased sleep; vaccination-site tenderness (including impaired movement); fever; headache; rash; urticaria/urticaria-like rash; vomiting; diarrhoea. Adults: decreased appetite; headache; diarrhoea; vomiting; rash; chills; fatigue; vaccination-site erythema; vaccination-site induration/swelling; vaccination-site pain/tenderness; limitation of arm movement; joint pain; muscle pain; fever. (Please refer to the full Prescribing Information for details). **Reference:** HK Pneumococcal polysaccharide conjugate vaccine, 13-valent adsorbed (version December 2015). **Date of preparation:** APR 2017 **Identifier number:** PR13-0417_Hong Kong **FULL PRESCRIBING INFORMATION IS AVAILABLE UPON REQUEST.**

PP-PRE-HKG-0006