Hong Kong Association of Rehabilitation Medicine Newsletter

Hong Kong Association of Rehabilitation Medicine

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Editor's words The newsletter is the only official publication used as a mean to compile and disseminate information and up-to-date knowledge to our members. We welcome members to submit articles which can be in the form of review articles, meeting reports, clinical vignettes, clinical quiz, and news about rehabilitation or interesting photos. Association has stopped giving printed copy of newsletter; instead, every member will receive hyperlink. Members can go to the Association's official website to download current issue as well as previous issues of newsletters. Members can send their articles to Dr Carmen Ho at hotk@ha.org.hk. ***Visit our homepage for more information.***

Post Meeting Highlights

Cebu Meeting: Convergence

Dr K P Leung

I attended a 3-day meeting in Cebu City, the Philippines in late March 2008. This was a conjoint event of the 2008 World Federation of NeuroRehabilitation East Asia regional meeting and the 1st congress of the Philippine Society of NeuroRehabiliation.

This meeting was attended mainly by doctors and other health professionals in the East Asian regions. The theme of this meeting is "Convergence: blending science, culture and art in neuro-rehabilitation. This theme emphasized the total and holistic approach to the management and care of individuals with neurological disorders. A broad range of neurological disorders were discussed including stroke, Parkinson disease, spinal cord injury and other neuromuscular diseases. Advances in neuroplasticity and approaches to enhance neuronal recovery were well addressed. Dr Leonard Li (founding president of HKARM) was one of key speakers and he shared with us the application of neuroplasticity into clinical training after brain injury. Practical management on complicated cases of spasticity was another focus of hot discussion. Use of traditional and local treatment modalities were also touched on. Organization of rehabilitation care in the community level in less affluent societies was indeed a challenge and this always remind me how lucky we are in Hong Kong.

There were 3 social programmes after each day of the meeting. They were beautifully run and were very impressive and sensational. Hence, my suggestion is not to miss any of the social functions whenever you attend meetings in this part of world.

Cebu is an island city in the Philippines with a lot of sunshine and beautiful beaches. People there are quite friendly and eager to smile to foreigners. Cultural and historical attractions are scanty and really not remarkable.

Last but not least, remember to observe strict personal hygiene in the Philippines as Dr Carmen Ho and I both have severe diarrhoea while in Cebu. We ate mostly in the hotel but still got this problem and so make sure you have plenty of lomotil, oral rehydration packages +/- antibiotic before you get there!

Highlight from Cebu meeting-Convergence: Are women with SCI treated the same as men with SCI?

Dr Carmen Ho

The theme of the meeting is “Blending science, culture and art in neurorehabilitation”. It covers wide variety of topics including paediatrics, stroke, spinal cord injuries and management of spasticity.

There is one special topic catches my eye, it is ”Women issues in spinal cord injury”. The speaker, who is a woman doctor, works in a spinal cord injury centre in United States. She points out that sexual and reproductive health issues like sex and marriage; conception and contraption; pregnancy and labour are neglected in most spinal cord injury centers in United States; however, these issues are especially important in managing women with SCI. Men occupy significant proportion in SCI population, these issues are relatively unimportant, and therefore, these topics are not well studied. Majority clinical guidelines used in United States are based on men. For example, cardiovascular disease and prevention are well studied among men with SCI. What about in women. There is no such data addressing the risk and incidence of cardiovascular disease in women with SCI. Do women with SCI have same risk as their normal counterpart? What are the impact of HDL and exercise in cardiovascular risk in women with SCI? Women face unique health and challenges, but knowledge deficits exist in this area. This highlights that we, as health professionals should aware gender-specific health issues in practice.

Academic Column

Rehabilitation of Attention Deficits

Leung KK, Clinical Psychologist i/c, Tung Wah Hospital

Attention training has been considered as being not superior to spontaneous recovery for patients with traumatic brain injuries or stroke during acute period of recovery [1-2]. On the other hand, using different stimulus modalities, levels of complexity and response demands, attention training is thought to be helpful in treating the attention disorders during post-acute phase [1-2]. However, the definitions of the acute phase and post-acute phase in these studies are arbitrary, as they range from four weeks to 36 weeks post-injury in the studies that claimed to involve subjects in the acute phase, and from seven weeks to 10 years post-injury in those studies involving post-acute phase.

Attention is not a unitary entity but consists of several distinct components or processes [3], such as alertness, selective attention, attention control, sustained attention, shifting of attention, etc. Patients who are said to have attention deficits can actually have different degrees and combinations of deficits at different attention components. Attempts to train specific components of attention by different means have been made [4-5]. Specific attention disorders seem to need specific training. For example, unilateral left visual neglect and inattention have been found to be remedied by visual scanning[6-8], spatio-motor and visual-spatial-motor training[9], trunk orientation, and limb activation therapy [10, 7]. Similarly, training that specifically targeted on working memory that involves control and manipulation of attention, was found to be effective in improving performance on trained and non-trained working memory measures, and in reducing self-reported cognitive problems of stroke patients with at least one year of onset [11].

Relative to direct retraining methods, specific skills training was found in a review of studies to be superior in improving performance of tasks that required attention, although the training benefit was not found to generalize to other neuropsychological or behavioural measures of attention [12]. Direct retraining requires the participants to complete a series of repetitive exercises that involve attention to visual or auditory stimuli. Specific skills training requires the participants to learn how to perform specific skills of daily activities, by probably developing alternative neuropsychological processes that rely on preserved brain areas to improve the skills performance. Nevertheless, it is also possible that attention is trained indirectly through repetitive practice of specific skills even in this skill training approach as in the direct retraining methods. The authors of the review [12] also acknowledged that only grouped data were presented in the review, and participants in many of the reviewed studies had severe brain injuries. Rather, it has been proposed that people with mild to moderate brain lesions might benefit from appropriate direct retraining so that neural circuits might potentially be re-established [13].

In fact, the studies reviewed above employed cognitive-behavioural tests or self-report measures to evaluate the effectiveness of the attention training. Attempts, though few, have been made to

examine the changes in neural activities in relation to attention training. For example, N140 component of somatosensory event-related potential was found to be recovered and was prognostic of general rehab outcome in a training of attention towards somatosensory stimulation on first-ever stroke patients in middle cerebral artery area during the acute rehab phase [14]. Another study showed partial restitution of the activities in the right dorsolateral or medial frontal cortex, regions known to subserve the attention network in healthy people, in a computerized training on the alertness component of attention of patients having right hemispheric vascular brain damage of five or more months post onset [15]. It seems that evaluating effectiveness of attention training through neuroimaging techniques is one of the future directions of research studies.

Attention is considered as a basic cognitive function which serves as a scaffolding on which other higher cortical functions build on[16]. However, existing research gives us little understanding on how attention abilities can be restored after brain damage. While we are looking forward to the advancement of knowledge and skills in treating attention deficits, it might be advisable for the patients with attention deficits to undergo various training modalities after the acute phase when their physical conditions allow, in order to capitalize on the benefits different training approaches.

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Interhospital Rehabilitation Meeting hightlights *(click here for slides)*

Cognitive sequelae of Carbon monoxide (CO) poisoning

Chu, Chun-Kwok Angus, Associate Consultant, Tuen Mun Hospital.

Charcoal suicide is the second commonest method of suicide adopted by the age 15-55 years old accounting for one third of all suicide deaths since 2001. Its incidence had been increased sharply after the first reported case in 1998. Although there is no accurate statistics on the prevalence of attempted suicide, it was estimated to be 10 times the number of completed suicide occurring in the territory. A review of local statistics showed that 93% patients attended the emergency department for carbon monoxide poisoning was a result of charcoal suicide. One can imagine the potential burden of non-fatal sequelae as a result of CO poisoning.

Neuro-cognitive sequelae of CO poisoning has been well reported. It can be seen both during the acute or delayed phase. The acute neurocognitive effect of CO is summarized in Table 1 [1]. Majority of the patients will recover from the initial coma after a mean of 2 days [2]. If the patients failed to recover from initial coma, the prognosis is grim. Mortality was as high as 50%, and those who survived will usually suffered from severe permanent neurological deficit [2]. Uncommonly, in 2.8 – 9.5% of the patients [3,4], a peculiar delayed neurological deterioration (DNS) was observed after an apparent clear period of 2 to 40 days (mean 22.5 days) [3]. The mean time to maximal disability from the onset of deterioration was 3-4 days [2]. No clinical or laboratory results had been identified to be predictive of which patients are at risk for this complication [3]. The most common cognitive symptoms and signs include apathy and blunted facial expressions, amnesia, disorientation, mutism, being irritable and easily distractable which was secondary to a consistent pattern of cognitive impairments affecting the short term memory, attention and concentration, executive dysfunction and processing speed. Parkinson-like motor disturbances had also been commonly described. However, treatment with levodopa or anticholinergics was usually ineffective. MRI usually revealed lesions in the subcortical white matter and basal ganglia [5]. However, prognosis of this group of patients is usually good. 70 – 80% of the patients will recover spontaneously in the first 6 months [3,4].

The mechanisms of DNS are uncertain. Pathologically, petechial haemorrhage, multifocal necrosis and demyelination were the usual findings. Globus pallidus and the deep white matter were often involved which is the regions most vulnerable to tissue hypoxia. Nitric oxide (NO) mediated reoxygenation injury to the neurons has been proposed to be responsible for the delayed neurological syndrome. Through its effort on the adherence of neutrophils to the endothelium via adhesion molecules, NO induced neutrophil adherence to the microvasculature leading to xanthine oxidase

activation, oxidative radical formation, oxidative damage, and ultimately brain lipid peroxidation. Degradation of unsaturated fatty acids leads to reversible demyelination of CNS lipids [6]. This also explained why treatment with hyperbaric oxygen has never been proven to be effective in the prevention of this condition [7]. To the contrary, all the DNS occurred in the treatment arm in one study [8].

Although no proven treatment is available to prevent this uncommon condition, effective rehabilitative treatment strategies e.g. goal management training, problem solving and self regulatory skills traing, can be implemented to help these patients overcoming their cognitive or neurobehavioural difficulties as a result of impairment in executive functioning. In our local review, screening for cognitive impairment is not a common practice. With the original intent to screen the potential candidates that might be beneficial for hyperbaric oxygen, CO neuropsychological screening battery (CONSB) developed more than 10 years ago [9] might be useful in another perspective. This comprised of a general orientation test (10-item list that measures the patient's orientation to time/place/person); Wechsler Adult Intelligence Scale–Revised subtests – Digit span, Digit–symbol, and block design; the Trail Making Test Part A & Part B and the story-recall subtest of the Denman Neuropsychology Memory Scale which are specific in measuring the commonly impaired areas associated with DNS after CO poisoning. Screening of patients during the acute admission and in the remission phase might be able to idenitify individuals that further cognitive interventions are indicated.

%HbCO	Human Responses and condition asso. with HbCO levels
0.3 – 0.7	Normal range due to endogenous CO production
1 – 5	Selective increase in blood flow to compensate for reduced blood O_2 carrying capacity, with advanced cardiovascular disease, cardiac reserve may be insufficient to compensate.
5 – 9	Visual light threshold increased, chest pain occurs with less exertion
10 – 20	Slight headache, abnormal VEP
20 – 30	Throbbing headahce, abnormal fine manual dexterity, dizziness
30 – 40	Severe headache, nausea, vomiting, confusion
40 – 50	Progressive worsening of all symptoms, vision, hearing and intellect imairment, incoordination
50 – 60	Coma and convulsion
60 – 100	Coma, lethal if untreated

%HbCO, Carboxyhaemoglobin blood saturation; VEP, visual evoked potential

Data adopted from O'Donoghue [1]

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Editorial board choices:

1. **Management of Bowel Dysfunction in neurological rehabilitation – A review**
   Raji Thomas & Barbara Chandler. Critical Reviews in Physical and Rehabilitation Medicine 2007 Vol 19(4): 251

   Bowel dysfunction is common in patients with neurological disease and can impact greatly on patients' quality of life. Because people are embarrassed to discuss the bowel symptoms, it is recognized as hidden symptom of disease. The management is helped by better understanding the pathophysiology. This article reviews the nature and prevalence of the problem and current evidence for the various techniques available for management. (Hard copy journal is available in Tung Wah Hospital).

2. **Treatment and Rehabilitation after Hip Fracture in the Elderly**
   Hitoshi Kagaya et al. Critical reviews in Physical and Rehabilitation Medicine 2007 Vol 19(2):97

   Hip fracture is common among elderly. We have increasing hip fracture incidence compared to last decade. This article focuses on femoral neck and inter-trochanteric fractures specially discussing their classification, conservative and operative treatment, rehabilitation protocol, period of functional recovery and other outcome measures. The appropriate intensity for rehabilitation is still controversial. The most informative part for this article is it discusses and compares different rehabilitation protocols. In our locality, I believe different hospitals may have different rehabilitation protocols as no particular protocol shows superiority over others. It may also due to lack of evidence in this area.

3. **Repeated Treatments With Botulinum Toxin Type A Produce Sustained Decreases in the Limitations Associated With Focal Upper-Limb Poststroke Spasticity for Caregivers and Patients**
   Elie P et al. Arch Phys Med Rehabil Vol 89, May 2008

   Stroke is common problem. Spasticity occurs in 19-38% as residual disability in stroke survivors. Botulinum toxin has been used widely in managing the problem. This is an open label multiple centre repeated-dose study. The study shows that it is safe and effective to use up to 5 consecutive treatments with BTX-A every 12 weeks for up to 56 weeks in patients with post-stroke spasticity. It is well tolerated and, it improves patients' quality of life and disability.

Upcoming news and events

HKARM Annual Social Function

The Council of the Hong Kong Association of Rehabilitation Medicine cordially invites you to attend our Annual Social Function on *19th June 2008 (Thursday) at 7:00pm* (after our inter-hospital rehabilitation meeting). It will be buffet dinner take place at *"The Place"*, 4/F Lobby, Langham Hotel, Mongkok. The fee will be charged at $50 per association paid up member. Each member can bring one relative and he/she will be charged at $100 per relative.

6th Pan-Pacific Conference on Rehabilitation

Date: 4-5th October 2008

Venue: HK Polytechnic University

Concession rate is offered to our HKARM member. Detailed information will be posted in the HKARM website (www.hkarm.org) in due course.

Please visit www.hkarm.org for more details of all the activities.