

Hong Kong Association of Rehabilitation Medicine Newsletter



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Paralympics Beijing 2008: an inspiration to physiatrists

Dr Carmen Ho

Tung Wah Hospital

One world, one dream is the theme of Beijing Olympic 2008. It has been a successful event, following it is Paralympic games.

In 1948, Sir Ludwig Guttmann organized a sports competition involving World War II veterans with a spinal cord injury in Stoke Mandeville, England. Four years later, competitors from the Netherlands joined the games and an international movement was born. Olympic style games for athletes with a disability were organized for the first time in Rome in 1960, now called Paralympics. In Toronto in 1976, other disability groups were added and the idea of merging together different disability groups for international sport competitions was born. In the same year, the first Paralympic Winter Games took place in Sweden.

Today, the Paralympics are elite sport events for athletes from six different disability groups. These disability groups are amputee, cerebral palsy, visual impairment, wheelchair including spinal cord injuries and other disabilities requiring wheelchair, intellectual disability and a group which includes all those that do not fit into the aforementioned groups (Les Autres). Since the 1960's, the development of sport for athletes with a disability has produced the development of classification systems; and this continues to evolve to the present day.

Why do we have paralympics? Is it because they cannot go for Olympics because of disability, Paralympics is where they can excel? We assume disabled person cannot reach the standard of able-bodied standard. However, what if an disabled person participate Olympics if their best time qualifies minimal standard of Olympics, is he/she allowed to compete with able-bodied athletes?

Is Paralympics a second class event? There have been some debates among professional federation. The story of Oscar Pistorius may give a glimpse. Oscar Pistorius is a double amputee (bilateral below knee) and, a Paralympic 100, 200, 400meter run record-holder, whoes ambition is to run in Olympics. International Association of Athletics Federations (IAAF) originally prohibits Pistorius from competing in able-bodied competitions despite Oscan can reach the minimal standard of the game. But the ban is lifted finally to allow experts to evaluate whether his curved 'blades' carbon fibre prostheses provide mechanical advantage.

The Olympic Games may be over, but the world's best differently-able athletes are now in Beijing to show the world they too can produce some unforgettable performances.

Paralympic emphasizes the participants' athletic achievements rather than their disability. Isn't it a great inspiration to both, us as physiatrists, and to our society?

Post Meeting Highlights

1st Asia Oceania Conference of Physical and Rehabilitation Medicine

Dr TK Kwok

Tung Wah Hospital



Nanjing is one of the oldest cities in Mainland China. She has beautiful historical scenes but also harbored a piece of holocaust. The 1st AOCPRM was held in this old city of China from 16th May to 19th May 2008.

The conference was held at Zhongshan Hotel. The location was excellent & the venue was up to international standard. The conference was well supported by the local university students and programs ran smoothly. The most impressing effort of the organizing party was



they translated the slides into Chinese & displaced simultaneously. It helped the Chinese audience so much but the effort they needed was huge.

Many famous international rehabilitation experts were invited as speakers & rendered this conference convincing. Plenty of Chinese speakers presented their experience helped us to have better understanding of rehabilitation in China. It totally

fulfilled the theme of this conference: "to bring the traditional to the modern for a better quality of life for the disabled".

However the discipline of the Chinese exhibitors needed much more improvement before they could reach international standard. Except this, this conference is a very successful & it was a good chance for exchange of experience.



Academic Column

MCQ in Rehabilitation

Dr Eddie Chow

Tun Mun Hospital

Introduction:

As a form of non-pharmacological treatment of musculoskeletal pain, acupuncture involves the needling of designated acupuncture points, with subsequent manual manipulation of needles or connected to electrical current. This may be helpful as an adjunct modality of pain control, especially in elderly patients and those with multiple contraindications to various analgesics due to concurrent co-morbidities. A number of well-conducted clinical trials were performed in the recent few years and showed some evidences of effectiveness of acupuncture in the treatment of musculoskeletal pain conditions. The question addressed some of the characteristics, mechanisms and uses of acupuncture in the control of pain.

Which of the following statements concerning the use of acupuncture in pain rehabilitation is TRUE?

- A. Current evidences suggest that both low-frequency and high-frequency electro-acupuncture produce analgesia through the activation of μ and δ -opioid receptors.
- B. In electro-acupuncture-related pain reduction, descending inhibitory pathways involving amygdala and periaqueductal gray matter are implicated in the process.
- C. The reduction of pain with acupuncture mainly works through 'Qi' and there is no evidence that concurrent application of electricity enhances the pain relief efficacy.
- D. Unlike other musculoskeletal pain conditions, studies consistently showed the absence of benefits of acupuncture in pain reduction in patients with osteoarthritis of knee.

Suggested Answer, Concepts and feedbacks:

- A. Incorrect. Researches in animals suggested that analgesia from high frequency electro-acupuncture is mediated through κ -opioid receptors while analgesia from low-frequency electro-acupuncture is mediated by μ and δ -opioid receptors.
- B. **Correct.** In animal models, blockade of opioid receptors with naloxone in the habenula, nucleus accumbens, amygdala, or periaqueductal gray matter prevents the analgesia produced using electroacupuncture (4–15 Hz).
- C. Incorrect. There were studies showing that when electrical current was administered via the needles in acupuncture, the pain relief effect was more effective than that of manual acupuncture

- D. Incorrect. Several studies showed that acupuncture was significantly superior to sham acupuncture and no additional intervention in improving pain and function in patients with chronic knee pain conditions, including osteoarthritis.

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Interhospital Rehabilitation Meeting highlights

[\(Click here for slides\)](#)

June: “A lady with a painful arm”
Dr. Wah Shu Hong, Heaven of Hope Hospital
Link.....

July: “The Nasty Feet.”
Dr Teresa YU, Rutonjee Hospital
Link.....

Summary of “The Nasty Feet”

Dr. Teresa Yu --- Inter-hospital Rehabilitation Meeting -- 17th July 2008

Diabetic foot ulcers, both neuropathic and neuroischemic are associated with increase risk of amputation, as well as morbidity and mortality. Systemic risk factors for ulceration include older age, uncontrolled hyperglycemia, long duration of diabetes, peripheral vascular disease, chronic renal disease and visual loss. Local risk factors for ulceration include peripheral neuropathy, foot deformity, callus, improper shoe wear and history of prior amputation. Timely diagnosis including detail history and comprehensive examination with neurological, vascular, musculoskeletal, dermatological and shoe wear examinations are essential.

Interventions for diabetic foot ulcers include wound care, off-loading, vascular control, infection treatment, metabolic control, education and some adjunctive treatments. Wound care includes wound debridement which can be surgical/sharp, mechanical (e.g. wet to dry dressing), chemical (e.g. streptokinase/collagenase), autolytic (e.g. hydrogel/hydrocolloid) and biosurgical (e.g. maggot therapy). Acceptable methods of off-loading include semicompressed adhesive felt padding, custom shoes, depth shoes, shoe modifications, custom inserts, custom relief orthotic walkers, diabetic boots, forefoot and heel relief shoes, pressure relief ankle foot orthoses, total contact casts, crutches, walkers and wheelchairs. Vascular control is sometimes necessary when an ankle brachial index is <0.5 or a damped doppler waveform; a transcutaneous oxygen of $<30\text{mmHg}$ or a toe pressure of $<30\text{mmHg}$. Early signs of diabetic foot ulcer infection may be subtle, rehabilitation specialists need to alert the signs of limb threatening infection (e.g. larger ulcer, $>2\text{cm}$ cellulitis, probes to bone, deep tissue infection ... etc.). Early treatment with appropriate type and duration of antibiotics is important. Good metabolic control and patient education with tight glycaemic, blood pressure and lipid level control, stop smoking, addition of statins and antiplatelets in cases of neuroischemic ulcers, self foot inspection, foot hygiene and proper foot wear are all important. Some adjunctive treatments like growth factors, tissue-engineered skin, negative pressure wound therapy and hyperbaric oxygen are now available. A multidisciplinary approach (rehabilitation specialists, endocrinologist, podiatrist, surgeons, prosthetic and orthotic, wound nurse) is essential and prevention is always the key.

Diabetic charcot joint disease is a complex and devastating disease that often results in structural deformities, ulcers and ultimately limb loss. Diabetes mellitus is the leading cause of charcot joint disease today. It is important for a rehabilitation specialist to recognize the subtle early signs of diabetic charcot joint disease (erythema, edema and elevated temperature) and initiating appropriate investigations for early diagnosis and prescription of off-loading measures to prevent further trauma from developing. Acute charcot joint disease is often misdiagnosed as infection

(cellulitis or osteomyelitis). Definitive diagnosis of charcot joint disease is by synovial tissue biopsy which contain shards of bone and cartilage embedded deep into the synovium, however, these tests are invasive and not without risks. Other investigations include plain radiographs but they are neither sensitive nor specific. MRI scan and combination of technetium-99 bone scan and white blood cell labeled scan are used for the diagnosis of charcot joint disease and to rule out osteomyelitis. Conservative treatment of charcot joint disease includes complete non-weight bearing for about 3 months, followed by partial weight bearing with off-loading modalities. Off-loading modalities include total contact casts, custom-molded shoes, cam-walker, charcot-restraint orthotic walker, patellar tendon brace ... etc. Surgical treatment is sometimes indicated when conservative measures fail and the surgeries vary from simple exostectomy, ulcer excision with or without flap/graft, Achilles tendon lengthening, to arthrodesis with internal or external fixation.

August: “When you lose your mind.....”

Dr Chan Tsz Pang, Part I

Dr Tam Cheuk Kwan Part II

Dr So Ho Pui Part III

Link....

“When You Lose Your Mind” - Part I

Dr. T.P. Chan

SMO, Dept. of Rehabilitation & Extended Care

TWGHs Wong Tai Sin Hospital

Differentiation between permanent vegetative state and minimally conscious state remains challenging even in expert hands. However it is crucial for making a correct diagnosis and predicting outcomes so as to plan intervention, to monitor its effectiveness, and to project disposition needs.

In the presentation, newer clinical tools, like JFK Coma Recovery Scale–Revised, and investigation methods, mainly event-evoked potentials and functional neuroimaging, are introduced to see how they may help achieve the these two tasks (diagnosis and outcome predication). The results are encouraging. But the audience should be aware of the limitations in interpreting the results.

There is little evidence in literature on the effectiveness of cognitive rehabilitation for the severely brain-damaged patients. Though some centers are trying innovative methods like multisensory stimulation (to increase arousal) and music therapy (to improve memory and recall), the basic principles remain physical therapy to prevent complications, and speech therapy to restore normal feeding.

“When You Lose Your Mind” - Part II:

Introduction to Hyperbaric Oxygen Therapy

Dr. C.K. Tam

SMO, Dept. of Rehabilitation & Extended Care

TWGHs Wong Tai Sin Hospital

Recent index cases of brain damage have aroused the public awareness of the use of hyperbaric oxygen therapy

(HBOT). Being a rehabilitation specialist taking care of those patients, especially those with poor recovery potential, will be requested by desperate relatives for opinion and we cannot be ignorant on this therapy.

There are two common types of HBOT chambers. The Multiplace Chamber is very bulky but can accommodate several patients at the same time. The oxygen content within chamber is less than 23% for safety reason and the patient needs to wear a hood or mask to receive 100% oxygen. The Monoplace Chamber is much smaller and easy to set up. The chamber is filled with 100% oxygen during treatment and need to wear an air mask during the air-break time to prevent oxygen toxicity. Patient monitors or therapeutic equipments, including ventilators, are usually placed outside the chamber with the sensors, wires or tubes connected through special ports. In recent years, portable mild hyperbaric chamber is available, even in Hong Kong, and is promoted for home use. The pressure is at most up to 1.3 ATA only, much lower than the usual pressure of 2-3 ATA for medical therapeutic use.

Several mechanisms of action of HBOT explain its therapeutic actions:

1. Boyle's Law ($PV=\text{constant}$) explain the mechanism in treating decompression sickness and arterial gas embolism.
2. Henry's Law (gas dissolved in liquid is proportional to partial pressure of the gas) together with law of mass action explain the rationale in treating carbon monoxide poisoning. It also explains the mechanisms in treating anoxic, severe anemia & ischemic conditions, decompression sickness and arterial gas embolism.
3. Antibacterial actions (increased leukocyte phagocytosis, bactericidal action of high energy oxygen radicals, bactericidal actions on anaerobes, normalized tissue pH to potentiate effects of some antibiotics) explain its use in some severe infections.
4. Reduce cerebral edema and tissue edema in burns through vasoconstriction effect.
5. Protect tissue from reperfusion injury by inhibiting sequestrations of neutrophils in venules.
6. Neovascularization effect which increases the resting tissue pO_2 in ischemic wounds after HBOT.

Problematic wounds such as those ischemic or hypoxic wounds in DM patients are the main bulk of patients in the HBOT centres. There are only 13 "approved" indications for HBOT. Traumatic brain injury is not an approved indication and present evidence only showed modest reduction in mortality but no improvement in good outcome. However, studies are not well designed and more research is needed.

September: No meeting