

Editorial

Hyperbaric Medicine: a potential subspecialty for Emergency Medicine in Hong Kong?

高壓醫學：香港急症醫學可發展的一個分科？

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As a clinical specialty matures, the development of subspecialties inevitably follows the subsequent explosion in knowledge. Even though Emergency Medicine is the youngest specialty in Hong Kong, it is no exception. As a model, the Society for Academic Emergency Medicine has formed dozens of interest groups, some of which have already been developed into Fellowship or subspecialty programmes by the American College of Emergency Physicians. Potential fields for subspecialty development in Emergency Medicine are summarised in Table 1.

In this issue, Lam and his colleagues in Tuen Mun Hospital reported their experience with 'the severity and prognostic markers of 148 cases of carbon monoxide poisoning by burning charcoal', which has replaced fires, car exhaust and indoor water heaters as the most common cause of carbon monoxide poisoning in Hong Kong. Notably, only 18 cases received hyperbaric oxygen therapy (HBOT). Though the benefit of HBOT in carbon monoxide poisoning is still controversial, most would agree that it is indicated in patients with a history of loss of consciousness, neurological abnormality, cardiovascular dysfunction,

or severe metabolic acidosis. Pregnancy, extremes of age, high carboxyhaemoglobin level and persistent symptoms are other possible indications.¹

In Hong Kong, a three-compartment compression chamber at Stonecutters Island (Ngong Shuen Chau) is providing recompression treatment or HBOT, being jointly operated by the Fire Services Department, the Occupational Medicine Divisions of the Labour Department and the Electrical and Mechanical Services Department. There are three drawbacks of this Recompression Treatment Centre. First, the centre is far away from hospitals, rendering intensive care support unavailable. Second, the incumbent medical and nursing support is only part-time and amateurish, from the Labour Department. Third, the service providers are unenthusiastic and the referring unit has to provide its own medical and nursing escort (often the most junior and inexperienced ones), to accompany the patient within the compression chamber. In 1998, a medical escort suffered from sinus barotrauma while treating a patient in the recompression chamber;² and in 1999, another suffered from ear barotrauma when treating a patient in the same recompression chamber.³ As a result, clinicians, including emergency physicians, have hesitation in requesting HBOT for their patients.

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The common indications for HBOT, other than experimental ones, are listed in Table 2. As can be seen, all the primary conditions will first be sent to the emergency department. As emergency physicians are

Table 1. Potential subspecialty fields for Emergency Medicine

Airway management	Hazardous material response	Public health
Cardiac emergencies	Hyperbaric medicine*	Resuscitation
Critical/intensive care	Infectious diseases	Simulation/telemedicine
Disaster medicine	Informatics	Sports medicine*
Domestic violence	International emergency medicine	Tactical emergency medical support
Ethics	Neurological emergencies	Toxicology*
Evidence based medicine	Paediatrics*	Triage
Forensic medicine	Palliative medicine	Trauma
Geriatrics†	Prehospital emergency care	Ultrasound†

*Subspecialty of American College of Emergency Physicians; †Fellowship programme available

Table 2. Indications for hyperbaric oxygen therapy**Primary**

Acute carbon monoxide poisoning and smoke inhalation
Cerebral arterial gas/air embolism
Decompression illness

Secondary (adjunctive)

Clostridial and non-clostridial gas gangrene
Necrotizing soft tissue infections
Intracranial abscess
Refractory osteomyelitis
Radiation tissue damage (osteoradionecrosis and soft tissue radionecrosis)
Crush injury/compartment syndrome/acute traumatic ischaemia
Compromised skin grafts/flaps
Non-healing ulcers in patients with diabetes or peripheral vascular disease
Acute thermal burns
Acute blood loss/anaemia (particularly in Jehovah's Witnesses)

well trained in advanced life support (ALS), they are in a unique position to resuscitate and stabilise such patients. If they take up Hyperbaric Medicine as their subspecialty, a 'one-stop' service would certainly improve utilisation.

On 16 March 2000, the American Board of Medical Specialties approved Undersea and Hyperbaric Medicine as a subspecialty of both Emergency Medicine and Preventive Medicine. The American Hyperbaric Medicine Fellowship program lasts 12 months. In Australia, the Australian and New Zealand College of Anaesthetists is the certifying body for Diving and Hyperbaric Medicine. Fellows of the

College of Anaesthetists or College for Emergency Medicine are eligible to sit the certificate examination in Diving and Hyperbaric Medicine after 18 months of training.

Even though there are small risks of adverse effects from high-pressure changes, oxygen toxicity and fire hazard, Hyperbaric Medicine provides the unique experience in multiplace and monoplace chambers with high potentials for clinical and technological advancement. Unlike other potential fields for Emergency Medicine, Hyperbaric Medicine has little overlap with other clinical specialties or subspecialties. A decompression chamber attached

to an emergency department, staffed by trained emergency physicians and nurses 24 hours a day, will not only expand the service and benefit the patients, especially those in critical condition, but will also promote the image of the hospital and provide opportunity for further development of Emergency Medicine toward the cutting edge of medical sciences. Emergency physicians should seriously consider the feasibility and advisability of setting up a decompression chamber in or near their emergency department.

References

1. Kao LW, Nanagas KA. Carbon monoxide poisoning. *Emerg Med Clin North Am* 2004;22(4):985–1018.
2. Ng HCC, Lo WK. Review of occupational diseases in 1998. *Public Health and Epidemiology Bulletin* 1999 Nov;8(4). Available from: <http://www.info.gov.hk/dh/diseases/ph&eb/9911.htm#3>.
3. Ho MMY, Lo WK. Review of occupational diseases in 1999. *Public Health and Epidemiology Bulletin* 2001 Feb;10(1). Available from: <http://www.info.gov.hk/dh/diseases/ph&eb/v10n1.htm#2>.