2016 Joint Conference of Poison Control Centres

Evaluation & Management

of the Seriously Ill Poisoned Patients

26 September 2016

Auditorium, Level 1, Main Clinical Block and Trauma Centre
Prince of Wales Hospital, Hong Kong

PROGRAMME BOOK

organised by

Prince of Wales Hospital Poison Treatment Centre
Hospital Authority, Hong Kong

Centre for Food and Drug Safety
Faculty of Medicine
The Chinese University of Hong Kong, Hong Kong

Welcome message from the Deputy Director of Health

I would like to welcome all healthcare professionals attending the 2016 Joint Conference of Poison Control Centres, which provides an update on the evaluation and management of the seriously ill poisoned patients. This is a fine example of how poison control centres and clinical toxicologists in the Asia Pacific Region together can provide a platform for sharing of expertise and continuing medical education in poison prevention and control.

Poisoning and other toxicological problems are increasingly complex due to intentional and unintentional exposures to a large number of drugs and chemicals, easy access to toxic agents through various channels and new poisoning hazards. To meet the greater demand for expertise in poison prevention and control, healthcare professionals should receive broad-based training and continuing medical education. The concerted efforts of multidisciplinary teams and poison control units must also be well coordinated and integrated with local healthcare system. In this regard, the Hong Kong Poison Control Network was officially established on 21 April 2007 to provide quality services to prevent, manage and control poisoning in Hong Kong. There is a lot to learn from the successes and challenges in the Region. It is important that collaboration and networking of poison control centres are strengthened.

I wish to thank the Prince of Wales Hospital Poison Treatment Centre, the Centre for Food and Drug Safety, Faculty of Medicine, The Chinese University of Hong Kong and the Organising Committee for their efforts in organising this Conference. I wish the Conference great success and all the participants fruitful exchanges in the discussion.

Dr. Cindy Lai, JP
Deputy Director of Health, The Government of the Hong Kong SAR
Chairperson of Hong Kong Poison Control Network

Welcome message from the Chairman of the Organising Committee

Poison exposures remain a significant public health concern worldwide. Poison control centres are working hard to improve the care of poisoned patients and poison prevention and ultimately to save lives. Besides maintaining their traditional activities (information, treatment, analytical and toxicovigilance services), poison control centres must deal with new challenges. Globally, there are greater demands for expertise and broad-based training in clinical toxicology because of increasing complexity of cases related to diverse sources of exposures to known or emerging poisons in the community and the environment. Toxicological problems caused by preparations obtained via the internet or during overseas visits pose diagnostic and management challenges. Toxicovigilance and real-time poisoning alert systems are also needed to identify toxic illness of public health significance. For both the traditional services and new initiatives, there are the continuing needs for the staff to acquire new skills and the healthcare professionals to receive CME in clinical toxicology. Networking and collaboration among poison control centres will create a critical mass of experts for poison prevention services, training and research.

As in previous years, Prince of Wales Hospital Poison Treatment Centre and Centre for Food and Drug Safety, Faculty of Medicine, The Chinese University of Hong Kong are honoured to host this Joint Conference, with support from poison control centres and clinical toxicologists in the Region and Past Presidents of Asia Pacific Association of Medical Toxicology. On behalf of the Organising Committee, I would like to welcome all participants and thank the chairpersons and speakers for their contribution. The 2016 Conference Theme "Evaluation and Management of the Seriously Ill Poisoned Patients" serves to emphasise the continuing needs for exchange of expertise, team efforts and preparedness in poison prevention and control, especially for serious poisoning and large outbreaks. Rodenticides, snake venoms, carbon monoxide, toxic alcohols and botulinum toxin are important toxic agents worldwide. Nowadays, all poison centres must be prepared for mass poisoning caused by known or unusual agents. The Tokyo subway attack in 1995 remained us of the threat from terrorism and chemical warfare agents.

I hope you all engage in making this Conference a stimulating forum for sharing experience and exchanging ideas. I wish all overseas speakers a pleasant stay in Hong Kong.

Prof. Thomas Y.K. Chan, BBS, JP
Chairman, Organising Committee
Director, Prince of Wales Hospital Poison Treatment Centre
Director, Centre for Food and Drug Safety
Faculty of Medicine, The Chinese University of Hong Kong

Organisers and Organising Committee

Organisers

Prince of Wales Hospital Poison Treatment Centre
Hospital Authority, Hong Kong

Centre for Food and Drug Safety
Faculty of Medicine
The Chinese University of Hong Kong, Hong Kong

Participating Centres

Centre for Food and Drug Safety, CUHK, Hong Kong

Mashhad Medical Toxicology Centre (MMTC), Iran

National Institute of Occupational Health and Poison Control, China CDC

National Poison Center, Taipei Veterans General Hospital, Taiwan

Poison Control Center, Shandong Province, China

Prince of Wales Hospital Poison Treatment Centre, HA, Hong Kong

Ramathibodi Poison Center, Bangkok, Thailand

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Prof. Reza Afshari
Dr. Jou-Fang Deng
Prof. Winai Wananukul
Dr. Jian-Fang Zou
Dr. Jones C.M. Chan
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Dr. Jian-Fang Zou
Director
Poison Control Center, Shandong Province, China, and
Shandong Provincial Academy for Occupational Health and Occupational Disease Prevention
Shandong Academy of Medical Sciences, China

Programme

8:30 – 9:00 Registration

9:00 – 9:03 WELCOME REMARKS

Prof. Thomas Y.K. Chan, BBS, JP
Chairman, Organising Committee, and
Director, Prince of Wales Hospital Poison Treatment Centre, and
Director, Centre for Food and Drug Safety

9:03 – 9:08 OPENING ADDRESS

Dr. Cindy Lai, JP
Deputy Director of Health
The Government of the Hong Kong SAR, and
Chairperson of Hong Kong Poison Control Network

9:08 – 9:15 GROUP PHOTOS

9:15 – 10:45 PREPAREDNESS AND RESPONSE PLANS FOR MASS POISONING

Chair Persons:

Dr. Jou-Fang Deng

Dr. Jimmy T.S. Chan

9:15 – 10:00 Introduction of the Rodenticides Poisoning Control in China

Dr. Hong-Shun Zhang

10:00 – 10:45 Acute and Late Complications of Chemical Warfare Agents

Prof. Reza Afshari

10:45 – 11:00 Tea Break

11:00 – 12:40 POISONING CAUSED BY METABOLIC POISONS AND TOXIC CHEMICALS

Chair Persons:

Prof. Winai Wananukul

Dr. Wing-Wa Yan

11:00 – 11:35 **Cyanide Poisoning**

Dr. Jou-Fang Deng

11:35 – 12:10 **Carbon Monoxide Poisoning**

Dr. Wing-Wa Yan

12:10 – 12:40 **Toxic Alcohols**

Dr. Jones C.M. Chan

12:40 – 14:00 Luncheon

14:00 – 16:00 Advances and Challenges in Poisoning Management

Chair Persons:

Dr. Raymond S.M. Wong

Dr. Jones C.M. Chan

14:00 – 14:30 **Prevention and Treatment of Adverse Reactions to Snake Antivenom**

Prof. Winai Wananukul

14:30 – 15:00 **Status of Poisoning Control in Shandong Province**

Dr. Jian-Fang Zou

15:00 – 15:30 **Severely Poisoned Patients Requiring Critical Care**

Dr. Anna K.S. Lee

15:30 – 16:00 **Botulism**

Prof. Winai Wananukul

16:00 – 16:15 General Discussion and Closing Remarks

Prof. Reza Afshari
Dr. Jou-Fang Deng
Dr. Hong-Shun Zhang
Prof. Thomas Y.K. Chan
Prof. Winai Wananukul
Dr. Jian-Fang Zou

Introduction of the Rodenticides Poisoning Control in China

Dr. Hong-Shun Zhang, National Institute of Occupational Health and Poison Control, China CDC

使用有毒化合物殺滅鼠類的方法稱為化學滅鼠法，化學殺鼠劑包括胃毒劑、熏殺劑、驅避劑和絕育劑等類別，以胃毒劑使用最為廣泛。國內常用殺鼠劑按照對鼠類毒作用快慢分為急性殺鼠劑和慢性殺鼠劑，前者包括磷化鋅、膽骨化醇、毒鼠強、氟乙醯胺、滅鼠優、毒鼠磷等，後者以抗凝血類殺鼠劑為代表。急性殺鼠劑雖然具有使用簡單、價格低廉、殺鼠見效快等優點，但對人、畜生命威脅較大，因此大多被國家禁用。目前，國內推薦家庭首選使用抗凝血類殺鼠劑滅鼠。

上世紀九十年代和本世紀初，包括毒鼠強和氟乙醯胺在內的急性致痙攣性殺鼠劑在國內氾濫使用，農村鼠藥銷售市場佔有比例達到 90%以上。據衛生部不完全統計，每年毒鼠強和氟乙醯胺的中毒人數達數千人,死亡上百人。有些村莊由於反復發生相關中毒事件，村民因恐慌大量背井離鄉，致痙攣性殺鼠劑中毒已經成為當時嚴重的社會問題。2003 年 9 月，最高人民法院、最高人民檢察院發出了 "關於辦理非法製造、買賣、運輸、儲存毒鼠強等禁用劇毒化學品刑事案件具體應用法律若干問題的解釋"，並在全國範圍內開展了毒鼠強專項治理工作。經過一年多的專項治理，毒鼠強氾濫情況就已經得到明顯遏制，據衛生部統計，2004 年第二季度比 2003 年同期中毒事件起數下降了 48%，中毒人數和死亡人數分別減少了 89%和 57%。

目前，國內殺鼠劑中毒主要品種為抗凝血類殺鼠劑，但其中毒人數也較以往大為減少，特別是由於其有特效解毒劑——維生素 K1，死亡人數更是明顯降低。在抗凝血類殺鼠劑中毒救治過程中，也存在毒物檢測方法不易普及、維生素 K1 使用不規範和療程過長等問題，這些都需要進一步研究加以解決。

Acute and Late Complications of Chemical Warfare Agents

Prof. Reza Afshari, Mashhad Medical Toxicology Centre (MMTC), Iran

Introduction: Chemical Warfare Agents (CWA) including sulphur mustard gas were used against both Iranian soldiers and civilians during the Iran-Iraq War of 1980-88, by the regime of Saddam Hussein. This presentation aims at discussing 30 years of observing clinical manifestations and management of patients including successes and failures in both military and civil setting from this unique tragedy.

Methods: Literature reviewed via PubMed in spring, 2016. Personal experience and data are also discussed.

Results: Acute effects following exposure; Ocular findings including conjunctivitis, edema of the eyelids and closure of the eyes were observed in the majority of the cases. Cutaneous manifestation including erythema, blisters and hyperpigmentation were common. Dyspnea and wheezing were the most frequent respiratory manifestations.

Delayed effects; Skin disorders (itching, burning sensation, blisters, dry skin, dermatitis and pigmentary changes), pulmonary findings (dyspnea, cough and expectorations and various obstructive and restrictive lung diseases) and ocular problems (photophobia, red eye, tearing, corneal ulcers and blindness) form the most prevalent chronic and delayed complications.

Despite the earlier reports rejecting additional cancerogenic effects in this population, the relative cancer risk has been reported to be 1.7 to 4% *two decades* after the exposure, which is significantly higher than the average cancer risks. Other complications ranged from genes dysregulated and teratogenic effects to negative changes in civilian mental health are also discussed within the literature. Although standardized treatment plans exist, none of which are curable. Immediate preventive measures after exposure improve the following outcomes and supportive and symptomatic treatments for chronic manifestations are still the core of treatment plans, 30 years after the exposure.

Conclusion: Available human (soldiers and civilians) data from Iraq-Iran war, as the sole source of information on acute exposure to CWA, should be used for research and educational purposes. Chronic (i.e. respiratory) and delayed (i.e. cancer) manifestations related to exposure to CWA is still evolving as the victims are getting aged and minor risks could become more prominent in future. Management of CWA victims should be integrated into the current curricula of medicine and health. [This presentation would include graphical images current from CWA victims].

References:

1. Panahi Y, Gholami N, Ghojazadeh M, Moslemi F, et al. Complications and Carcinogenic Effects of Mustard Gas--a Systematic Review and Meta-Analysis in Iran. Asian Pac J Cancer Prev. 2015; 16(17): 7567-73.

2. Balali-Mood M, Afshari R, Zojaji R, Kahrom H, Kamrani M, Attaran D, Mousavi SR, Zare GA. Delayed toxic effects of sulfur mustard on respiratory tract of Iranian veterans. Hum Exp Toxicol. 2011 Sep; 30(9): 1141-9.

Cyanide Poisoning

Dr. Jou-Fang Deng, National Poison Center, Taipei Veterans General Hospital, Taiwan

Cyanide poisoning can occur either in acute or chronic situations. Exposure to cyanides or cyanogenic substances, whether through the routes of inhalation, ingestion or dermal exposure, may have the potential to develop cyanide poisoning. In acute scenario, cyanide poisoning is a real emergency, unless the diagnosis is suspected and treated with specific antidote immediately, otherwise the prognosis has been usually with significant morbidity and mortality. The mechanism of acute cyanide toxicity is that cyanide ion will interfere and disturb the mitochondria energy producing and storing system in the sub-cellular level. Therefore, the most highly energy consuming organs such as central nervous system, cardiovascular system as well as kidney are affected much more prominently and easily. With a suspicious exposure history along with acute consciousness disturbance, picture of myocardial ischemia and lactate acidosis shall bring us to a tentative diagnosis of acute cyanide poisoning. Further tests results such as elevated plasma level of cyanide and thiocyanate, in conjunction with an elevated level of urinary thiocyanate shall help us to confirm the diagnosis. In emergency setting, while laboratory facility is not available to support the measurement of cyanide and thiocyanate level, a therapeutic trial with antidotes administration shall be considered. The dosage exposure of the cyanide, the underlying health status, the time lapsed before medical support as well as the antidote administration will determine the prognosis.

Carbon Monoxide Poisoning

Dr. Wing-Wa Yan, Pamela Youde Nethersole Eastern Hospital, Hong Kong

Carbon monoxide (CO) poisoning is a common type of poisoning in modern society. It may occur accidentally or intentionally. Burning charcoal in an enclosed environment, resulting in CO poisoning, is a form of suicidal method particularly common in Hong Kong. According to the Hong Kong Poison Information Centre data, there were more than 400 reported cases of CO poisoning from year 2006 to 2010 and the trend was increasing.

CO has 240 times affinity for hemoglobin than oxygen with the formation of carboxyhemoglobin. The formed carboxy-haemoglobin is not able to carry oxygen and the oxygen dissociation curve is shifted to the left. It deprives the cells from getting enough oxygen and results in cellular hypoxia leading to cell dysfunction or death. CO also acts as a cellular poison by binding to intracellular cytochrome enzymes. Long term neurological sequelae are probably due to damage to brain cells through lipid peroxidation and free radical generation.

The diagnosis of CO poisoning is usually obvious through history of CO exposure. The presence of elevated blood carboxy-haemoglobin confirms the diagnosis. Treatment of this poisoning is basically supportive by high concentration of oxygen. Breathing in high concentration of oxygen helps to speed up the clearance of carboxy-haemoglobin and this clearance is even higher if CO poisoned patient is given hyperbaric oxygen therapy (HBOT). HBOT is indicated whenever there is evidence of severe CO poisoning such as loss of consciousness, myocardial ischemia or high level of carboxy-haemoglobin on presentation. Its application to a patient is usually not for saving life by providing more oxygen to prevent hypoxia, but to reduce risk of delayed neuropsychiatric sequelae following CO poisoning weeks later. So far the best available evidence has confirmed its usefulness. Severe CO poisoning has been widely accepted as one of the indications for HBOT by various organizations like the Underseas & Hyperbaric Medical Society and the South Pacific Underwater Medicine Society.

However, it was found that more than 90% CO poisoned patients who are indicated for HBOT did not receive this treatment in Hong Kong despite the proven benefits of preventing the long term neurological sequelae and preserving the cognitive functions for long-term rehabilitation. One of the main reasons why physicians in Hong Kong are unwilling to send their patients for this therapy is the safety issue involved in transporting the patient to the hyperbaric chamber. The only public multi-place chamber in Hong Kong is not hospital based and is situated in a remote government dockyard where the setup is grossly inadequate for managing severely

poisoned patients. These CO poisoned patients' conditions are often complicated with cardiovascular collapse and they are mechanically ventilated. The physicians often have to balance the benefit of HBOT and potential risks during long distance transport. It is good to know that Pamela Youde Nethersole Eastern Hospital is going to commission a hospital based HBOT centre in Hong Kong soon. It is hoped that from then onwards, our CO poisoned patients can be treated safely with HBOT.

Toxic Alcohols

Dr. Jones C.M. Chan, Prince of Wales Hospital Poison Treatment Centre, Hong Kong

The category of toxic alcohols generally includes methanol, ethylene glycol, diethylene glycol, and isopropanol (isopropyl alcohol). Unlike ethanol, toxic alcohols are poisonous alcohols that can damage the heart, kidneys, and nervous system. In clinical practice, these toxic chemicals are not uncommonly encountered. They are either ingested for intentional self-harm, unintentionally, or attempted inebriation. Toxic alcohol poisoning is not always a clear-cut diagnosis. Exposure may also occur where the source of the toxic alcohol is unanticipated, e.g. in alcohol-based handrub, thinner etc. Early symptoms and signs of toxic alcohol poisoning are similar to those of ethanol inebriation such as vomiting, lethargy or coma. Though the presence of osmolal gap and high anion gap metabolic acidosis are important diagnostic clues, these metabolic disturbances may occur in other disorders such as ketoacidosis, lactic acidosis or renal failure. On the other hand, the absence of metabolic disturbances does not necessarily exclude toxic alcohol poisoning. A definitive diagnosis of toxic alcohol poisoning requires measurements of serum toxic alcohol concentration or detection of their metabolites, which are not routinely available in many hospital laboratories. Administration of ethanol or fomepizole can slow down the conversion of parental alcohols into toxic metabolites by inhibiting the action of the responsible enzyme alcohol dehydrogenase. Compared to use of ethanol as an antidote, fomepizole is associated with less adverse effects. Haemodialysis can effectively remove these alcohols and their toxic metabolites such as formate, glycolate, and glycoxalate. The role of haemodialysis in patients treated by fomepizole will also be discussed.

Prevention and Treatment of Adverse Reactions to Snake Antivenom

Prof. Winai Wananukul, Ramathibodi Poison Center, Bangkok, Thailand

Snake antivenom is an essential element for treatment of venomous snakebite patients. It either reverses or inhibits pathophysiologic disturbances caused by snake venom. On the other hand, adverse reactions related to antivenom are concerned. According to the WHO guideline in 2010, these adverse reactions are classified as early and late reactions. Early adverse reactions (EARs) comprise pyrogenic reactions and anaphylactic reactions. The anaphylactic reactions include both IgE-mediated and non IgE-mediated reactions. The incidences of EARs were around 20% but varied widely ranging from less than 5% to nearly 90%. The incidence observed by Ramathibodi Poison Center was 19%. It was likely that the rate was biased by the presence of EARS in cases which consulted to the poison center. The factors contribute to this variations included sources, types and countries of studies. Antivenoms which are Fab or $F(ab')_2$ are believed to be safer than IgG. Severity of EARs is graded as mild, moderate and severe.

Measure to prevent snake antivenom EARs begins with drug selections. Purified preparations are preferred. At the present time, number of measures to prevent EARs in clinical practice were evaluated and changed. Firstly, skin test prior to administration of the antivenom was suggested in the past. Relevant studies recently showed that it had low sensitivity and positive predictive value for EARs. Therefore, it is not further recommended. Secondly, there were some reports which proposed that EARs were related to rate of infusion. However, recent randomized controlled trial study showed that slower rate of antivenom infusion did not prevent or reduced the incident of EARs. Thirdly, premedication has been evaluated for its efficacy to prevent EARs. Several drugs including adrenalin, corticosteroid and antihistamine were tested. A number studies as well as meta-analysis studies have suggested that low dose subcutaneous adrenalin could reduce the incidence of EARs. But no beneficial effects of premedication with corticosteroid or antihistamine alone was found. However, adverse reactions related to adrenalin were of concern. Therefore, it was recommended only for setting of high risk to develop EARs. In case of developing anaphylaxis, normal saline bolus and intravenous infusion of adrenalin was recommended. If the EARs are only mild to moderate, stop infusion of the antivenom, symptomatic and supportive treatment are recommended.

The late adverse reaction is serum sickness. There is no any intervention evaluated to prevent the reaction. If the patients developed serum sickness, 60 mg of oral prednisolone is recommended for 2 weeks.

Status of Poisoning Control in Shandong Province

Dr. Jian-Fang Zou, Poison Control Center, Shandong Province, China

The projects come from Shandong Province Medical Fund (2014WS0336). It contains four following aspects:

1. Chemicals Legislation in China: We have the complex chemicals legislation system, more management regulations, and no connectivity and no operability. Management responsibilities are unclear. Chemicals registration system is flawed and did not reflect the "preventive principle". Information Systems and Chemicals public system is imperfect, punishment is not enough.

2. The Capability of Poisoning Emergency Response in Hospital: We survey a total of 1,318 hospitals and investigate 1,600 emergency medical staff. It is showed that the treatment capacity were significant differences between economic status of the region in Shandong Province. We must increase the first-aid equipment, supplies, staffing, and strengthen poison control team building, detoxification of drugs and antidotes reserves in low economic level of the region. It is urged to training and exercises the medical staff to improve treatment capacity about the poison control.

3. The Public Demands and Attitudes for Poison Control: A total of 272 people were investigated. Public believed that pesticides, drugs, plants are the main poison in life. They obtained the poison information from the Internet, books, and Drug Instructions. They want to know what should they do when they have acute toxic and how to prevent poisoning. When the public have acute poisoning, they often turn to for help from the Internet, professional books, doctors. They wish the government to control the origin of poison, and propagate poison information to protect them.

4. The Medical Condition of Poisoning Inpatients Admitted to Hospital: 15,165 poisoning cases were obtained from 150 hospitals in Provincial Medical Record Management System by the year of 2015. The top three cases were gas poisoning (5,519 cases, 36.4%), pesticide poisoning (5,056 cases, 33.3%), drug poisoning (3,043 cases, 20.1%). Female occupied 8,173 cases (53.9%). The average hospitalization is 7.43 days, an average hospital costs is 8,222.13 yuan.

Conclusion: It is accelerately that to improve the legal system of chemicals management, strengthen poison control coordination, management, poisoning disposal capacity and manage the information of poisoning cases, strengthen public health education to prevent poisoning and protect the public health.

Severely Poisoned Patients Requiring Critical Care

Dr. Anna K.S. Lee, Prince of Wales Hospital, Hong Kong

In the year 2014-2016, 32 out of 1,430 patients admitted to our hospital with diagnosis of poisoning required management in the intensive care unit (ICU), this account for about 1% of our total ICU admission. Among these patients, most required simple observation and monitoring, only few were in critical condition requiring multi-organ support.

Initial management of these patients is no different from other critically-ill patients. Priority should be given to standard resuscitative measures with support of airway, breathing and circulation. Once stabilized, attempts should be made to clarify the toxins taken; urgent consultation with toxicologist or regional poison center is also recommended as further management of these patients would benefit from a thorough understanding of the toxins. Poisoned patients can deteriorate rapidly, appropriate and timely interventions could prevent further deterioration to cardiac arrest.

The challenges of managing these patients include the infrequency with which it would require ICU admission, the heterogeneity of the presentation, sometimes the diagnosis could be concealed, and toxicology laboratory testing seldom available in a time frame that would support early resuscitation decisions. Most of the time clinician has to establish a working diagnosis based on physical signs and symptoms, and bedside laboratory tests such as arterial blood gas and ECG. It is however important to maintain an open mind and constantly review the diagnosis.

Gastrointestinal decontamination used to be a mainstay of treatment, however it is time dependent and effectiveness is questionable. For critically-ill patients, life saving measures should take precedence. Delayed gastric emptying is common, administration of activated charcoal might still be considered even beyond 1 hour of poisoning. On the other hand, whole bowel irrigation is technically difficult and seldom tolerated by the critically-ill.

Intermittent hemodialysis is a commonly employed extracorporeal modality for removal of toxins of high water solubility. It is preferred to continuous haemodiafiltration for its efficacy within a given time period. However it is less tolerated by hemodynamically unstable patient.

The overall mortality from acute poisoning is less than 1%. With appropriate treatment, most of these patients could survive and return back to their normal life.

Botulism

Prof. Winai Wananukul, Ramathibodi Poison Center, Bangkok, Thailand

Botulism is a neurological disease caused by botulinum toxin which is produced anaerobically by *Clostridium botulinum*. There are 5 types of botulism according to the sources of the toxin; food borne, wound, intestinal, therapeutic-aesthetic and as biological warfare. Food borne botulism is the most common form. However, the number of therapeutic-aesthetic form is remarkably increasing.

Botulinum toxin is heat-labile. Taking uncooked and poorly preserved food is the cause of food borne botulism. The toxin inhibits acetylcholine release at the neuromuscular junction and cholinergic nerve ending. Because the inhibition is an irreversible process, the clinical course may prolong for 4-8 weeks. Clinical presentation comprises anticholinergic toxidrome, bulbar palsy and descending paralysis. Onset of the illness ranges from hours to many days after ingestion. Because it is a rare disease, the diagnosis is based on awareness and recognition of the typical clinical presentation. Sometimes, sources of the toxin is not initially recalled by the patients. This causes diagnosis of botulism difficult.

Management of botulism includes supportive and specific treatment. Respiratory support is most essential and should be promptly performed if indicated. Specific botulinum antitoxin is an essential therapeutic agent for treating botulism. It can prevent progression and shorten duration of the disease. Therefore, it should be administered to the patients at the early stages of illness. However, our Thai experiences have suggested that it also have beneficial effect even at late administration.

In conclusion, botulism is a rare fatal disease. Awareness and recognition of its clinical syndrome are the keys to detecting this disease. Botulinum antitoxin is a specific antidote which should be administered as early as possible.

CME / CNE / CPE Accreditations

CME		
Institution	**Points**	**Category**
Hong Kong College of Anaesthesiologists	5.17	Ana-Passive
Hong Kong College of Community Medicine	Pending	
Hong Kong College of Emergency Medicine	5	pp
Hong Kong College of Paediatricians	5	Cat. E
The Hong Kong College of Pathologists	5.5	pp
Hong Kong College of Physicians	5	
CNE: 5 points accredited		
CPE: 3 points accredited		

Notes