THE ROLE OF CLINICAL TOXICOLOGIST IN THE MANAGEMENT OF ACUTE AND/OR CHRONIC POISONING OUTBREAKS: EXPERIENCE OF THE TAIWAN NATIONAL POISON CONTROL CENTER

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Background: Clinical (medical) toxicology is a unique and complex specialty focusing on the diagnosis, management and prevention of various poisonings. Clinical toxicologists have the expertise to identify and treat conditions such as acute and chronic effects of different toxic exposures, adverse drug reactions, envenomations, workplace or environmental chemical exposures, criminal poisonings, and other toxicologic problems. Moreover, clinical toxicologists play an important role in the early detection and prevention of poisoning outbreaks. Taiwan National Poison Control Center (PCC-Taiwan) was founded in 1985 and has been involved in the management of numerous poisoning outbreaks in Taiwan. The practical experience of PCC-Taiwan accrued over the last two decades is thus extremely valuable for all healthcare professionals who may encounter poisoning outbreaks in their clinical practice.

Case presentations: Case studies that will be presented in this lecture include outbreaks of both acute and chronic poisoning exposures in Taiwan. Acute poisoning outbreaks that will be presented comprise mollusk related tetrodotoxin poisoning, *Sauropus androgynus* (weight-losing vegetable) poisoning, homicidal carbamate insecticide (methomyl) poisoning, paramethoxy-methamphetamine poisoning, lean meat powder (clenbuterol plus salbutamol) poisoning, and homicidal ethylene chlorohydrin poisoning; whereas chronic poisoning outbreaks consist of aristolochic acid containing Chinese herbs related nephropathy, melamine-contaminated food exposure, and plasticizer (i.e. phthalates)-contaminated food exposure. The role of PCC-Taiwan in the management of the aforementioned poisoning outbreaks will then be discussed.

Conclusions: Clinical toxicologists can play important roles in the management and prevention of various poisoning outbreaks. Nevertheless, clinical toxicologists need to be well-trained, experienced and knowledgeable so that they can achieve excellent professional performance.
CLINICAL TOXICOLOGY IN SRI LANKA: TRANSLATING RESEARCH INTO PRACTICE

Andrew Dawson

The potential targets for implementing require different levels of communication. The most effective target is regulatory change such as pesticide restriction. This requires clear communication between all the partners in the process. At a clinical level evidence based guidelines are frequently produced, the challenge is for them to be utilised especially in remote hospitals. Within Sri Lanka interventions have occurred at a number of levels including undergraduate curriculum review, development and delivery of distance postgraduate clinical toxicology courses. The greatest challenge is influencing existing practice. Variables that influence evidence translation into practice include; the patient and communities prior beliefs about treatment, within the hospital it includes doctors, nurses and other staff. Moving these guidelines into practice is one of the areas of our current research. Issues identified in rural hospitals include; professional isolation, poor access to knowledge on best practice, lack of support to adopt best practice, inadequate stocking of antidotes, inappropriate inter-hospital transfer and competing beliefs of other staff (nursing and attendants) and the community as to what constituted appropriate treatment. We completed a randomized control trial in 44 primary rural hospitals that focused upon initial care in particular decontamination and currently have a further trial in 104 hospitals looking at treatment practices. In our original trial we delivered a short interactive teaching session using a lecture/workshop format in the primary hospital to medical and other hospital staff. This was combined with the distribution of posters describing treatment algorithms derived from National Poison Treatment Guidelines Book plus distribution of promotional items with reminder messages. The results of this study showed that such an intervention could significantly alter some treatment behavior such as increased utilisation of activated charcoal but not alter other behaviors (such as induced emesis). Sociological analysis showed that different staff were responsible for different aspects of treatment, specifically attendant medical staff would induce emesis as they believed that the local community expect this treatment. Ultimately moving research into practice requires a system of evidence communication that clinicians trust.
POISONING ISSUES IN VIETNAM

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**Introduction:** Poison control is an important part in the health care system. In developing countries, the morbidity and mortality of poisoning are higher than those in developed countries even though these are generally preventable and treated with good outcomes. The poisonings in this area are also more complicated and diverse which are challenges and opportunities to poison control centers. This presentation is to introduce the features of poisoning in the North of Vietnam and experiences of the poison control center in this region.

**Content:** Population of Vietnam is 86,927,700 in 2010 with the GDP per capita of 1080 USD approximately. The country has 63 provinces located in 3 regions (North, Centre and South). There are geographical, climate and economical differences among regions. Budget for the healthcare and especially for poison control is very low. Leading causes of poisoning and death rate: agricultural chemical poisoning 22.6% (death 4.92%), venomous animals 15.57% (death 0.93%), drug of abuse 12.84% (death 6.67%), sedative-hypnotics 12.81% (1.51%) and other agents (survey in 44 provinces). The special issues include pesticide poisonings, snakebite, hymenoptera evenomation. The poisoning profile has been changing according to the economical development and social changes. Both classical and newly emerging poisonings can be seen. Classical poisonings e.g. organophosphate poisoning, seizure inducing rodenticide poisoning used to be prominent but now become less frequent. New and emerging poisonings e.g. drug overdoses, drugs of abuse, new pesticide poisonings are more common. At the poison control center, the leading poisoning in 2011 is drug overdose (25.09%), followed by drug of abuse (18.12%), animals (17.68%), pesticides (10.32%), household chemicals (4.67%) and others. The poison control system consists of the 2 Poison control centers, 1 department of clinical toxicology and units of clinical toxicology at departments of emergency or departments of intensive care at all provincial hospitals. Poison control center of Bach Mai hospital: The first department of clinical toxicology was established in 1998 which is separated from the department of emergency and intensive care medicine of Bach Mai hospital. The department became the poison control center of Bach Mai hospital in 2003. The center works as a national poison control center but with very low budget from the government. The human and facility resources are mainly for the clinical toxicology unit which is the most developed unit of the center. The death rate of poisonings at Bach Mai hospital from 8.5% (before the establishment of poison control center) to less than 1% (after the establishment of the center). Many classical poisonings was already resolved in term of the good outcomes, especially organophosphate and nereistoxin poisoning, severe hymenoptera evenomation and snakebite. Researches have been carried out which contributed to the improvement in the care of poisoned patients, e.g. development of gastric lavage set and liquid charcoal preparation, in organophosphate poisoning (death rate currently 1.84% at the center and 3-5% at provincial hospitals), antivenoms and hypertonic sodium chloride in snakebite, continuous venous-venous hemofiltration/hemodialysis and plasma exchange for removal of poisons and supportive care of critically poisoned patients. Toxicology tests including both screening and conformation tests are done at the laboratory of the center. Regarding training and education, clinical toxicology is one important part of emergency and critical care medicine. Learners are trained at the center on the daily basis at the center including medical students, nursing students, emergency and critical care doctors (at all levels). Thousands of learners were trained so far at and outside the center. The center is author and co-author of 23 books in clinical toxicology, emergency and critical care medicine. The center has been being actively working in spite of the current financial crisis because it bases on what it has in hand. The telephone consultation has not been deployed successfully and is now the major limitation in the poison control of Vietnam.

**Conclusion:** Poisoning in Vietnam has special features. It creates both difficulties and opportunities for the poison control career. The poison control center has tried it’s best to keep the work going only with available resources and brought about certain significant achievements.