

## P-70

### Rodenticide poisoning: a report of two hazardous agents - zinc phosphide and tetramine

Aing Ling Lee<sup>1</sup>, Kwanhathai Darin Wong<sup>1</sup>, Jun Guang Tan<sup>1</sup>  
<sup>1</sup>Emergency Department, Penang General Hospital, Malaysia

**Objective:** Most rodenticide poisoning treated in Penang General Hospital are warfarin/superwarfarin rodenticides. We report two cases of uncommon rodenticide poisoning - Zinc Phosphide and Tetramine.

**Case report:** Case 1 is a 17 years-old lady who presented after ingesting rat poison. The substance was described as a dark-coloured powder. Subsequently, she developed recurrent vomiting. The substance was immediately identified as zinc phosphide by National Poison Centre via telephone consultation. She rapidly developed hypotension refractory to fluids and was started on noradrenaline. Blood gas revealed compensated lactate acidosis. She was admitted to Intensive Care Unit (ICU) and haemodialysis was performed for worsening lactic acidosis. Unfortunately, she developed cardiac arrest with ventricular arrhythmias and despite resuscitation, she died 12 hours post-ingestion. Case 2 is a 46 years-old lady with schizophrenia who presented after ingestion of rat poison. She had 3 episodes of generalized tonic-clonic seizures at home with recurrent vomiting. Seizure was aborted with diazepam and phenytoin. She was intubated. The rat poison was identified as tetramine. She had severe lactic acidosis. Treatment included sodium bicarbonate infusion, urgent haemodialysis and admission to ICU. She was extubated on the following day but still had frequent seizures despite taking anti-epileptics.

**Discussion:** Zinc phosphide appears as fine dark grey-black powder, which interacts with water to release toxic phosphine gas. Lactic acidosis in Case 1 patient is common as phosphine gas inhibits cellular mitochondrial activity. Mortality rate is reported to be high (37-100%). Death usually occurs within 12-24 hours due to refractory hypotension, dysrhythmias and pulmonary edema. There is no proven antidote. Case reports suggested treatment with Castor Oil and N-acetylcysteine. Tetramine is a white odourless crystalline powder that irreversibly binds to gamma-amino butyric acid (GABA) receptor on neurones, resulting in neuronal hyperexcitation. Refractory seizure in Case 2 patient is a common presentation. Multi-organ involvement may also be present. There is also no antidote available. Studies show gastric lavage and early hemoperfusion followed by continuous veno-venous hemofiltration are associated with better outcome. Public awareness and regulation of product sale remain crucial to reduce incidences of rodenticide poisoning. In unidentified poisoning, it is important to seek early expert consultation with local poison centres to identify the substance to improve patient management.