INVITED SPEAKERS

Professor Geoffrey Isbister is a clinical toxicologist at the Calvary Mater Newcastle, a consultant to the New South Wales Poison Centre and a clinician researcher at the University of Newcastle with major interests in envenomation and poisoned patients. He has published extensively on the pharmacometrics of drugs in overdose, serotonin toxicity and drug induced QT prolongation.

Developing clinical guidelines based on pharmacometrics studies in overdose patients

Treatment of overdose patients is usually based on anecdotal evidence and case reports. The relationship between dose ingested, drug concentration and clinical effects is poorly understood for most drugs in overdose and there is uncertainty in the exact dose and time of ingestion. Pharmacometrics can be used to quantify these relationships, which can potentially be used to help risk assessment in overdose patients, including the benefit of different treatments such as decontamination and the need for monitoring such as telemetry. Both the relationship between the dose ingested and drug concentrations (pharmacokinetics), and drug concentrations and clinical effects (pharmacodynamics) can be understood by developing a pharmacokinetic-pharmacodynamic (PKPD) model of a drug in overdose. The model is then used to address clinically important questions, such as: Above what dose should patients be decontaminated?; Above what dose should patients have cardiac monitoring?; For what period of time should patients be monitored? Citalopram overdose will be used as an example to show how a PKPD of a drug in overdose can be used to develop guidelines for treatment, including the use of single dose activated charcoal and cardiac monitoring for QT prolongation.