



Associate Professor Betty Chan

Associate Professor Betty Chan is an Emergency Physician & Clinical Toxicologist. Currently she is the head of the clinical toxicology unit at Prince of Wales Hospital in Sydney. She is also a VMO toxicologist at the New South Wales Poisons Information Centre. Her current research interests include digoxin, lithium, dihydropyridine, and sodium channel blocker toxicity.

Something Old, Something New in Cardiovascular Poisoning.

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Cardiovascular poisoning can cause significant morbidity and mortality. In the 2017 Annual Report of the American Association of Poison Control Centre report, cardiovascular poisonings were attributable to 11% of the fatalities (254/2314 cases).

In this presentation, the traditional and newer approach to the management of acute and chronic digoxin poisoning, serum alkalinisation in tricyclic antidepressant overdoses and vasoplegic shock in dihydropyridine poisoning will be discussed.

In acute digoxin poisoning, it has been shown in our Australian Toxicology Monitoring Project (ATOM) that digoxin-Fab is an effective way of managing digoxin toxicity. However, the previous recommended bolus dose of 5-10 vials of digoxin-Fab appeared to be excessive and unnecessary. Instead, the new approach is to give 1-2 vials digoxin-Fab and titrated to clinical response. This approach is safe and effective and patients could be re-dosed if symptoms recur due to rebound phenomenon. On the other hand, there is no evidence to support the routine use of digoxin-Fab in managing chronic digoxin poisoning due to the multiple co-morbidities that could contribute to the clinical picture.

In tricyclic antidepressant poisoning, it is suggested that patients should be treated with serum alkalinisation. However, there is no systematic way to determine how patients could be adequately alkalinised to an optimal pH of 7.5. Our recent study showed that this could be best managed by a combination of hyperventilation and bicarbonate therapy. The Henderson-Hasselbalch equation may be used to predict the bicarbonate dose coupled with hyperventilation to bring the serum pH to 7.5.

Dihydropyridine calcium channel antagonist is considered as the least toxic calcium channel antagonist when compared with verapamil and diltiazem. However, the 2017 NACCT report suggested that amlodipine was attributable to 80/254 (31%) deaths within the cardiovascular drug groups. It is postulated that the synergistic effect of dihydropyridine calcium channel blocker and angiotensin axis antagonist poisoning could be the cause of vasoplegic shock that require haemodynamic support.