EDITORIAL

Availability and quantity of antidotes in New Zealand
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Most instances of poisoning and drug overdoses requiring medical attention can be successfully managed with appropriate supportive care; nevertheless, some patients require timely intervention with a suitable antidote to minimise the risks of morbidity and mortality. Success may depend on the availability and quantity of the desired antidote.

Overseas investigations have shown that many healthcare institutions are understocked of antidotes to treat these patients. Despite a recent study to the contrary, the paper by Fountain and colleagues, published in this issue of the New Zealand Medical Journal, suggests similar problems in New Zealand hospitals with shortcomings in hospital pharmacy stocks and resupply. The paper raises concerns that many antidotes would not be stocked in sufficient quantity to manage a single 100 kg poisoned patient for 8 hours at most New Zealand hospitals.

Antidotes can be critical for the successful outcome of poisoning. For example; before the antidote for cardiac glycosides became available, all patients who suffered a sustained cardiac arrest died. Poisoning from digoxin or cardiac glycosides can occur in New Zealand, such as following the ingestion of oleander or foxglove. Nevertheless, the paper by Fountain and colleagues suggests digoxin fab antibodies to treat poisoned patients are not readily accessible in most New Zealand hospitals. Lack of availability of this antibody has also been reported in other overseas audits.

This is possibly because vials are expensive, such poisonings are not a common event, it has a relatively short shelf-life and up to 20 vials may be necessary to treat one adult patient.

One initial problem is defining which antidotes are essential and how much to stock. For example, prompt antidotal treatment is critical for successful management of poisoning from digoxin and cardiac glycosides, opioids and cyanide. Researchers in the United States have investigated this and determined a list of essential antidotes. Debate needs to be conducted to determine which antidotes are applicable and necessary for New Zealand. While some antidotes like flumazenil, physostigmine and glucagon are described as essential in the United States guidelines, many clinicians would not regard them as such, and some antidotes (for example physostigmine, fomepizole, Prussian blue and cyproheptadine among others) are not available in New Zealand as there is no registered product on the local market.

Having input from a range of health professionals specialising in medical toxicology, emergency medicine, critical care medicine, paediatrics, hospital pharmacy along with the National Poison Centre may help to refine this list to make it more appropriate for New Zealand. As the study discusses, there are also new antidotes which may be beneficial and others which should no longer be stocked.

While having a list of essential antidotes for New Zealand would be advantageous, some antidotes, antivenoms and antitoxins which would be classed as essential, as they may be life-saving, are rarely used or are expensive and it would be prohibitive to stock them at every hospital. For example, major poisonings requiring antidotal care from some classically toxic agents like mercury or arsenic are rare nowadays, while antivenom use following envenomings from venomous creatures in New Zealand is also uncommon.

As Fountain and associates suggest, centralisation of these antidotes is likely the best way to ensure stocks are available throughout New Zealand. In such cases, knowing where the antidote is held and having protocols in place for timely transport, particularly to smaller outlying hospitals, are required.
A database of stocked antidotes, readily accessible to all New Zealand hospital pharmacies, could therefore be an appropriate way of monitoring the accessibility of antidotes. In order for it to be of use and accurately display antidote holdings, it would require participating hospitals to ensure their stocks were monitored and this information was kept up-to-date in real-time.

There is presently an antidote list available, published by the New Zealand Hospital Pharmacists’ Association, but unfortunately it does not appear to have been updated since November 2013. An investigation into the feasibility of a real-time database therefore seems warranted.

Antidotes are critical in treating some poisoned patients. Fountain and co-workers have highlighted inadequacies in the availability and quantity of stocks of antidotes in New Zealand. These short falls can be addressed by establishing which antidotes are necessary for New Zealand, having stocks readily available, and an up-to-date database to assist clinicians sourcing such stocks that are not available in their respective hospital pharmacies.

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References