ANTIDOTE AVAILABILITY IN HOSPITALS IN THE NETHERLANDS

Van Riel, AJHP.[1]; Van Riemsdijk, T.[1]; Jansman, F.[2]; De Vries, I.; Meulenbelt, J.[1,3,4]

[1] *National Poisons Information Center, University Medical Center Utrecht, the Netherlands,*

[2] *Deventer Hospital, Deventer, the Netherlands and University Groningen, Groningen, the Netherlands*

[3] *Intensive Care Center, University Medical Center Utrecht, the Netherlands,*

[4] *Institute for Risk Assessment Sciences, Utrecht University, Utrecht, the Netherlands*

Objectives: Availability of antidotes can be lifesaving in case of certain intoxications. In the Netherlands (population 17 million, 487/sq.km) there is a National Serum Depot containing antisera for treatment of venomous animal bites and stings. There is also a national stock of antidotes for treatment of accidental exposure to radioactive nuclides. There is no central stockpile of antidotes for treatment of common chemical/drug poisoning. The aim of this study was to investigate the availability of antidotes for chemical/drug poisoning.

Methods: A questionnaire was sent to all 87 hospitals with an Emergency Room (ER). The available amounts of 47 antidotes were surveyed. The amount is particularly important for antidotes that need to be administered in substantially higher doses for poisoning than for therapeutic purposes (e.g. hydroxocobalamine). Availability was scored positive if an adequate amount was stored for the treatment of at least one poisoned patient. For this abstract we focus on 17 antidotes commonly used in toxicology.

Results: 17 hospitals (20%) replied, mainly university medical centers and general hospitals with a regional function. Results are listed in Table 1.

Table 1. Antidote availability in 17 main Dutch hospitals with an ER

Antidote	Indication	Availability # (%)
atropine	organophosphate, carbamate	17 (100%)
intravenous lipid emulsion (ILE)	local anesthetics, other	17 (100%)
flumazenil	benzodiazepines	17 (100%)
naloxone	opiates	16 (94%)
n-acetylcysteine (NAC)	paracetamol	15 (88%)
methylene blue	methemoglobinemia	15 (88%)
physostigmine	atropine, parasympathicolytics	15 (88%)
calciumgluconate hydrogel	hydrofluoric acid	12 (71%)
fomepizol	methanol, ethylene glycol	3 (18%)
digoxin Fab antibodies*	digoxin	2 (12%)
Cyanide antidotes		
sodiumthiosulfate	cyanides	16 (94%)
hydroxocobalamine	cyanides	3 (18%)
sodiumnitrite	cyanides	1 (6%)
Chelators		

deferoxamine	iron, aluminum	17 (100%)
Ca-Na-EDTA	copper	3 (18%)
DMSA (succimer)	lead, arsenic, mercury, other	1 (6%)
DMPS (unithiol)	lead, arsenic, mercury, other	1 (6%)

* centrally stocked in one hospital pharmacy, Ca-Na-EDTA=calcium-sodium- ethylenediaminetetraacetic acid, DMSA= dimercaptosuccinic acid, DMPS= 2,3-dimercapto-1-propanesulfonic acid

Conclusions: The limited response rate only justifies conclusions on gaps in availability. Some commonly required antidotes like NAC and calciumgluconate hydrogel, and some more expensive antidotes like fomepizol and hydroxocobalamine were not available in all hospitals. Specific chelators for metal poisonings, other than iron, are hardly available. In five cases hospitals indicated that an unavailable antidote was used in the last year; implicating that the antidote was obtained from elsewhere. Central stocking of essential and potentially life-saving antidotes could improve the availability of especially the less often used and relatively expensive antidotes.