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85. The use of hemodialysis in medical toxicology practice: The toxic experience

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Background: The use of extracorporeal treatments such as hemo- dialysis (HD) for the removal of toxins predates the use of these therapies for renal failure. Most published research is limited to case reports or small case series, leaving a very limited body of information to guide practitioners on their use for the management of poisonings. A previous study from the American Association of Poison Control Centers (AAPCC) described their experience with HD in poisons. The aims of this study are to describe the use of HD in medical toxicology practice through review of the ToxIC Registry and to compare it to the AAPCC experience.

Methods: The ToxIC Registry, created in 2010, provides detailed information on patients cared for by medical toxicologists at the bedside. We analyzed all cases in the registry database from Jan 1, 2010 to December 31, 2012 where providers indicated that HD had been performed.

Table. Hemodialysis for Toxin Removal. 2010–2012 2001–2005

Results: From a population of 16,503 cases, we identified 273 (1.7%) that received HD. 14 (5.4%) had incomplete data and were excluded. HD was most frequently used for ethylene glycol (23.2%), lithium (18.9%), salicylate (13.1%), methanol (3.9%) and metformin (3.5%). Other poisonings where HD was used more than once were carbamazepine, digoxin, valproic acid and propylene glycol. Table compares ToxIC to AAPCC data.

Discussion: The EXtracorporeal TReatments in Poisoning (EXTRIP) work-group, convened in 2010, consists of interna- tional experts representing over 20 medical societies and is in the process of finalizing recommendations regarding extracorporeal toxin removal in poisoning based on review of medical literature. EXTRIP has called for the development of research allowing for more robust study in this area. Whereas most hospitals or sites only see a handful of poisonings in which HD is used for toxin removal, the multi-center nature of ToxIC supports the implementation of prospective multicenter studies on the use of treatments such as HD in poisonings.

Conclusion: Understanding the use of HD across the ToxIC Registry is the first step in developing an infrastructure capable of producing the research trials necessary for better informing medi- cal practice in this area. The removal of toxic alcohols, lithium and salicylate are the most common reasons toxicologists use HD. ToxIC data is generally similar to AAPCC data in terms of overall frequency of HD for specific toxin removal.

Table. Hemodialysis for Toxin Removal.

Toxin	2010–2012 ToxIC data (%)	2001–2005 AAPCC data (%)
Ethylene Glycol	23.2	26
Lithium	18.9	32.4
Other	60.6	3.4
Salicylates	13.1	18.7
Methanol	3.9	5.8
Valproic Acid	1.2	6.5
Ethanol	0.4	3.7
Benzodiazepine	0.0	3.5