

# TOXALERT

Newsletter of the MARYLAND POISON CENTER

**Saving  
lives**

**Saving  
dollars**

June, 1999

Volume 16, Issue 2

**The role of GI decontamination procedures in managing a poisoned patient is controversial and continually changing.**

## **The Changing Role of GI Decontamination** Ursula Hopkins, Pharm.D.

Gastrointestinal decontamination is one of the modalities most commonly performed during the management of an acutely poisoned patient. Induction of emesis, orogastric lavage, the administration of activated charcoal and cathartics, and whole bowel irrigation are modalities that have been utilized, alone and in combination, in an attempt to limit the absorption of potential toxins. While the use of these various methods of GI decontamination has been commonplace for several years, their efficacy and role in patient care has been studied and debated for just as long.

Like many other medical specialties, clinical toxicology is an evolving discipline. Over the years, the focus of toxicologic research and management guideline development has shifted towards evaluating the effect of a given therapy on medical outcome. As a result, the roles of many treatments in the management of a poisoned patient have changed significantly. Most recently, the American Academy of Clinical Toxicology (AACT) and the European Association of Poison Control Centers and Clinical Toxicologists (EAPCCT) developed Position Statements on the role of GI decontamination in the management of the poisoned patient. The two societies conducted extensive reviews of the available scientific literature and called upon the

expertise of numerous clinical toxicologists to create guidelines that provide the healthcare provider with the most relevant and timely information on each decontamination modality. The product of this collaboration was endorsed by the American Board of Applied Toxicology and the Canadian Association of Poison Control Centers and was published in December 1997. Although these position statements were published over a year ago, their penetrance into medical specialty areas beyond clinical toxicology has been slow.

***How has the approach to GI decontamination in the poisoned patient changed?***

### **Syrup of Ipecac**

#### ***GI DECONTAMINATION TRENDS: Maryland Poison Center***

	<b><u>Year</u></b>	<b><u># of cases</u></b>	<b><u>% of all cases</u></b>
<b><i>Ipecac</i></b>			
	1988	4271	13%
	1993	1791	5%
	1998	342	1%
<b><i>Activated Charcoal</i></b>			
	1988	2585	7%
	1993	4092	11%
	1998	3452	9%
<b><i>Gastric Lavage</i></b>			
	1988	1060	3%
	1993	1067	3%
	1998	559	1%

## GI Decontamination (continued)

For years, syrup of ipecac has been the agent of choice for the induction of emesis in the poisoned patient. In the past, syrup of ipecac was stocked and administered in Emergency Departments and routinely used in the home when an accidental exposure to a potentially toxic substance was suspected. However, numerous studies have indicated that the efficacy of syrup of ipecac appears to diminish as the time to administration increases. In most cases, administration of syrup of ipecac beyond one hour post ingestion has limited efficacy and may actually delay the use of activated charcoal. Additionally, the use of syrup of ipecac has not been associated with a significant improvement in medical outcomes.

Today, the use of syrup of ipecac has diminished and has been mostly limited to the home or prehospital environment. The Maryland Poison Center has seen a 92.3% decrease in the use of ipecac within the last ten years (see table). This trend towards a decreased frequency of use has also been observed nationally.

### Gastric Lavage

Orogastric lavage has also experienced a narrowing of its scope of applicability in the management of the poisoned patient. Experimental models have shown that the amount of substance recovered via gastric lavage is highly variable and is diminished as time to administration increases. In addition to these findings, a paucity of clinical outcomes-based research on the efficacy of orogastric lavage exists.

Like syrup of ipecac, the utility of orogastric lavage beyond one hour post ingestion is limited. Because the utilization of orogastric lavage can significantly delay the administration of activated charcoal, in general its recommended use has been

limited to potentially life threatening ingestions that present early and cannot be adequately managed using activated charcoal alone.

### Activated Charcoal

Today, activated charcoal is the primary GI decontamination modality utilized in emergency departments. It has been used alone and in combination with cathartics such as sorbitol, magnesium citrate, and magnesium sulfate. Like the other treatment modalities, the greatest benefit from activated charcoal appears to be within the first hour following ingestion. Little data exists on the effectiveness of activated charcoal when administered beyond one hour following ingestion. However, its use beyond one hour after ingestion is commonplace and in some cases warranted due to the chemical and pharmacological characteristics of the ingested toxin.

Recently, for-home use activated charcoal products have become available. These products typically contain 15 grams of dry activated charcoal that must be diluted with water before use. While the at-home product may provide for the early administration of activated charcoal, concerns about the appropriate utilization of this product in a non-hospital environment exist. At this time there is no consensus among poison centers on the role of these activated charcoal products as an in-home GI decontamination modality.

The goal of this article was to briefly review each of the GI decontamination modalities and summarize their place in the management of the acutely poisoned patient. The decision as to whether or not GI decontamination should be performed and which modality should be

**The Maryland Poison Center has observed a >90% decrease in the use of syrup of ipecac since 1988.**

**Activated charcoal does not effectively adsorb alcohols, iron, lithium, most hydrocarbons and caustics.**

utilized must be based on many factors. The potential toxicity of the agent, the chemical and physical characteristics of the ingested substance, time post ingestion, the presence of symptoms or their estimated time to development, and contraindications for use all play an important role in the decision making process. In addition, one must always consider that a certain level of risk is associated with each one of the treatment modalities. As time moves forward and the quality and quan-

tity of outcomes based research increases, revisions to the treatments used in the management of the poisoned patient will most likely occur. Keeping abreast of new developments in the management of the poisoned patient is essential and can have positive effects on resource utilization and patient outcome.

Consult with the Maryland Poison Center on all poisonings:

410-706-7701  
(Baltimore)

Or

1-800-492-2414  
(all of MD)



## TOXNOTES: Dermal Exposures to Hydrofluoric Acid

*"I cleaned my wheels last night and now my hands are starting to really hurt!"*

Hydrofluoric acid (HF) is found in industrial and household products such as wheel cleaners, brick cleaners, glass etching solutions, and rust removers. HF is highly corrosive and has unique properties that can cause severe complications not seen with other acids. With skin exposure, HF penetrates beyond coagulated tissue and dissociates into hydrogen ions and cytotoxic fluoride ions. The fluoride ions readily bind to intracellular calcium, forming calcium fluoride. Deep tissue destruction results, including full-thickness skin loss and destruction of underlying bone. Pain and erythema may not be immediate and can even be delayed up to 24 hours with low concentrations of HF (5-15%). Hypocalcemia, hypomagnesemia, and hyperkalemia may occur, especially if a large surface area is exposed or if the concentration of HF is 20% or greater.

All HF exposures should be considered potentially serious and require thorough evaluation. Treatment includes decontamination/irrigation to prevent further absorption, assessment for systemic toxicity and aggressive therapy if symptoms develop. Treatment is aimed at inactivating free fluoride ions by chemical binding of fluoride with a calcium compound. A 2.5% calcium gluconate or calcium carbonate gel can be applied topically to affected areas and should be reapplied if pain returns. If topical therapy fails to relieve the pain, if pain is immediate, or if the exposure was to a high concentration of HF, subcutaneous injections of 5-10% calcium gluconate should be considered. (Calcium chloride is irritating to tissues and should not be used in this manner). Intravenous or intra-arterial calcium gluconate might be necessary for extensive burns. Serum calcium, potassium and magnesium levels should be closely monitored. All symptomatic patients should be on a cardiac monitor, as the resulting electrolyte imbalances can lead to arrhythmias. IV calcium may be necessary for hypocalcemia.

---

Maryland Poison Center  
University of Maryland at Baltimore  
School of Pharmacy  
20 N Pine St  
Baltimore, MD 21201

---

---

Bulk Rate  
U. S. Postage  
PAID  
Permit No. 4695  
Baltimore, MD

---



410-706-7701 or 1-800-492-2414

---

TOXALERT

## RED ROCK OPIUM

Anne Arundel , Baltimore and Carroll counties, and Baltimore City have seen the emergence of a new drug of abuse called “**Red Rock Opium**”. The substance is described as reddish-brown and crystal-like. Laboratory analyses of samples of red rock opium seized in Maryland and Virginia and analyzed at the DEA’s Special Testing and Research Laboratory revealed that the samples contained dracorhodin and **no opium**. Dracorhodin is found in the plant *Daemonorops draco*, commonly know as Dragon’s Blood. It is used in Chinese medicine where it is known as Xue Jie.

Users of “Red Rock Opium” report effects to be mildly hallucinogenic and not at all like true opium. Unfortunately the pharmacological and toxicological effects of dracorhodin remain largely unknown. Treatment of such exposures is supportive. The Maryland Poison Center is interested in hearing about all cases of exposure to “Red Rock Opium”.

**Red Rock  
opium –  
a new  
“drug” of  
abuse.**