



Recent Developments in Poison Control

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National Poison Prevention Week is a yearly event that was established by Congress and President John F. Kennedy in 1961 through Public Law 87-319.¹ Designated in the third week of March, it is the focus of annual activities intended to prevent accidental poisonings.

Poison Statistics

The U.S. Consumer Products Safety Commission issued a warning to coincide with the 2005 Poison Prevention Week.² The organization reported that unintentional poisonings were responsible for over one million calls to poison control centers and 78,000 hospital visits for children ages younger than 5 years in 2003. The data were compiled by the American Association of Poison Control Centers and the National Poison Prevention Week Council, as well as the Consumer Product Safety Commission.

Acetaminophen

Acetaminophen has been a leading cause of poisoning for many years. It is the most common reason for poisonings in the United Kingdom, being the source of 50% of acute poison-related hospital admissions.³ Thus, the U.K. introduced legislation in 1998 to restrict sales, which may have reduced its dangers.⁴ One reason for this problem is a widespread perception of nontoxicity.

An example may prove instructive. A 17-year-old high school teenager took 20 tablets of 500-mg acetaminophen over a three-hour period for migraine.⁵ While acetaminophen is also a common vehicle for suicide, physicians confirmed that her intent was not suicidal.⁶ She began vomiting, and her vital organs gradually failed. Prior to her death, she regained consciousness long enough to state, "I'm so sorry, Ma. I didn't realize that I took that many pills. I thought it was OK. It's just Tylenol, Ma." Pharmacists must stress the toxicity of acetaminophen products at the point of sale. Alternatively, they might transfer these products to a location behind the counter to ensure that patients are properly advised on their dangers.

Poisoning Caused by Dietary Supplements

Few categories of poisoning are as disappointing and difficult to research as those caused by dietary supplements. These poisonings are disappointing because dietary supplements are a group of products whose legal meaning is ill-defined and whose pharmacology and toxicology are incompletely elucidated due to the lax strictures inherent in the retrogressive Dietary Supplement Health and Education Act (DSHEA) of 1994.⁷ Since manufacturers are not required to conduct the research needed to prove efficacy or safety, many simply do not do so. Thus, the average health food store stocks hundreds of products whose safety profiles are unknown.

Manufacturers have therefore neglected carrying out the standard toxicological tests, such as those required of prescription products, because they are not required to do so; they are also not required to report adverse events to the FDA.⁷ Furthermore, DSHEA does not require premarketing testing of dietary supplements for such contaminants as lead, cadmium, or arsenic. Thus, a child taking an overdose of any herb may also be exposed to unidentified toxins. The Institute of Medicine further observed that American consumers assume incorrectly that some governmental agency regulates dietary supplements with rules similar to those governing legitimate nonprescription products.⁷

Conium maculatum

Conium maculatum is the scientific name for poison hemlock.^{8,9} An authoritative review presented various aspects of the herb, including the fact that it was used to kill Socrates in 399 b.c.⁸ It contains a variety of piperidine chemicals known as the *coniine alkaloids*, also found in aloes. The chemicals are neurotoxins, with ingestion possibly resulting in nausea and vomiting, abdominal pain, tachycardia, seizures, ascending paralysis, muscular tremor, weakness, and coma and death from respiratory failure.⁸ Unfortunately, herbal and homeopathic companies have marketed products containing hemlock, usually labeling it *Conium maculatum* or *Succus conii*, which serves to mislead consumers about potential toxicity, as this practice hides its more commonly understood name. Homeopathic Web sites recommend it for hundreds of unproven uses, e.g., vertigo, red ear wax, striped shapes in front of the eyes, corneal ulceration, cancer of the face, pain in the breast, crusty ulcers on the skin, and "hard" cancers.¹⁰ As a result of a resurgence of interest in these unproven claims, one can even purchase poison hemlock seeds on the Internet.¹¹ While it is true that there are no published reports of toxicity or poisoning from herbal or homeopathics containing poisonous hemlock alkaloids, the Institute of Medicine pointed out: "Absence of evidence of risk does not indicate that there is no risk."⁷

Veratrum album

Veratrum album has been described as a "violent irritant poison."¹² Two individuals drank a bitter fluid extract of the roots and experienced nausea, vomiting, headache, sinus bradycardia, and diarrhea.¹² Although they recovered, the course of more severe poisonings can only be conjectured. Despite lack of proof of safety and efficacy for any use, it is a popular homeopathic remedy. It is allegedly effective for nonsense delirium, vertigo, suppressed urine, gallstone pain, forcible vomiting, black stools, "shrivelled [sic] fingers," comatose sleep, and hundreds of other unproven uses.¹³ Herbalists and others can purchase seeds of this toxic plant on the Internet.¹⁴

Poisoning from a Dietary Supplement Containing Hidden Bromine

A 10-year-old boy was admitted to a hospital with upper respiratory infection, seizures, increasing lethargy, anorexia, and fever.²⁴ Physicians found that his mother had administered multiple doses of a dietary supplement (Diankexing) obtained from an herbalist and found to contain bromine. The patient's symptoms were consistent with bromism, leading the authors to stress the dangers of poisoning from dietary supplements, as well as highlighting the shortcomings of the medical community in addressing that problem.

Pyrrolizidine Alkaloids

Another danger arises from herbs that contain pyrrolizidine alkaloids. They include comfrey--the subject of a 2001 FDA letter to dietary supplement interest groups. The agency asked them to discontinue the products and to warn consumers to cease their use immediately.¹⁵ The alkaloids are the cause of hepatic veno-occlusive disease, and several reports of human toxicity had appeared by 2001. They are also potential carcinogens.¹⁵⁻¹⁷ Despite the clear warning regarding toxicity, several firms could be found selling comfrey on the Internet in 2006. (For safety reasons, their sites will not be provided.) If asked, pharmacists should advise against ingestion of comfrey in any form. Having an herb of unproven benefit and suspected or proven toxicity in the house also exposes children to the dangers of hepatic failure if it is accidentally ingested in a poisoning episode.

Contaminated Herbal Teas

In 1994, several cases of toxicity involving an herbal tea known as *Paraguay tea* were reported by the Centers for Disease Control and Prevention.¹⁸ The leaves were purchased commercially; three families were affected, and three individuals required emergency treatment. While the tea was undoubtedly thought to be safe by those who purchased and brewed it, it nevertheless contained atropine, scopolamine, and hyoscyamine. A grocer had purchased the tea directly from farmers, and it apparently had been contaminated by another plant. This report exposes the dangers inherent in the unrestrained and unregulated sale and use of herbals. The FDA had warned consumers about toxicity of herbal teas as early as 1991.¹⁹ Their availability within the home could allow children to eat the raw leaves that are used for brewing, or to consume the tea itself.

Poisoning Caused by Topical Pesticides

Lindane was once considered appropriate therapy for pediculosis (head lice). However, it was shifted by the FDA to second-line therapy in 1995.^{20,21} At that time, because of toxicity issues, the agency limited package sizes, required a boxed warning, and required the dissemination of a medication guide with each new prescription. There are an estimated one million prescriptions written for lindane each year. In 2005, the Centers for Disease Control and Prevention published a review of unintentional ingestions of topical lindane, spanning the years from 1998 to 2003.²² The research uncovered 857 cases, with 8% suffering adverse effects of moderate severity and 1% experiencing effects of high severity. Signs and symptoms included vomiting (59%), nausea (18%), oral irritation (19%), and abdominal cramping, cough, and seizure in 3% to 4% of cases.

Adults mistook lindane for cough syrup in many cases. In one, a pharmacy misfilled a prescription for albuterol syrup with lindane. In another, a 47-year-old Texas man ingested 1 ounce of lindane in the mistaken belief it was cough syrup.²² He experienced vomiting. Also, a 3-year-old boy ingested 1 teaspoonful of 1% lindane shampoo.²² The mother induced vomiting twice. Despite this, he collapsed one hour postingestion and experienced a tonic-clonic seizure that was four to five minutes in duration. He was discharged in stable condition from the emergency department three hours after admission. Lindane alternatives for head lice include synergized pyrethrins, permethrin, and malathion. Those substances were responsible for an additional 523 unintentional poisoning cases during the years included in the study.

The agency concluded that declining use of lindane will ameliorate the danger somewhat, but pharmacists should never transfer lindane from its manufacturer-supplied 1- or 2-ounce bottles into pharmacy bottles that are identical to those used for oral medications, such as cough syrups. It might be advisable to ensure that lindane and other pesticides are not in the house to prevent causing accidental ingestion.²⁰ The pharmacist can aid in this effort by educating physicians and consumers about nontoxic, environmentally safe alternatives to pediculosis, like thorough combing with specially designed combs that remove live lice and nits.

Pyridoxine

Pyridoxine is thought to be useful in treating such problems as premenstrual syndrome. This is an unproven claim, but women who take this product and keep it in their homes may also have children who could gain access to it. Overdoses may result in ataxia, incoordination, and seizures.²³ Like other potentially dangerous substances, it should be kept away from children.

Certain medications, such as nonprescription pain relievers and common cold products, can be dangerous to children. To help prevent childhood poisoning, store medicine in areas inaccessible to children, keep tablets in their original container, and close the cap of medications firmly after each use.

Childhood poisoning is a tragedy that is almost always avoidable. Most poisonings are caused by common household products. These products are found in virtually all households and are scattered around the house in areas that are easily accessible to crawling children, such as beneath sinks and in unlocked cabinets.

Some of the Most Dangerous Poisons

Dangerous poisons for your children include:

- Personal care products, such as baby oil or any mouthwashes containing alcohol (ethanol).
- Cleaning products, such as drain openers and oven cleaners.
- Nonprescription pain relievers, including aspirin, acetaminophen, ibuprofen, and naproxen. Check the labels of any nonprescription pain reliever, but don't forget to check sinus products, cough/cold products, allergy products, sleep aids, and menstrual products, since they may have one of these added to alleviate pain.

- Nonprescription cough and cold medications.
- Hydrocarbons, such as chemicals found in lamp oil or furniture polish.
- Vitamins and supplements containing iron, especially the adult-strength versions.

Be Careful with Medication

Childproof caps on medication vials have been the focus of much humor over the years. However, since their introduction, they have saved an estimated 900 lives related only to aspirin and prescription medicines. Unfortunately, many people remove medications from the original pharmacy vials to place them in such containers as plastic daily-dose reminders. Still others request nonchildproof caps, since they no

longer have children constantly in the house. In both of these cases, the intent of childproof packaging has been defeated. If grandchildren visit, they have much more access to the medications, increasing the risk of poisoning. Be sure to leave medicine in the original container, and close the top tightly every time you use it. Never leave a few tablets lying around waiting for the next dose interval.

When the time comes to discard medication that is no longer being actively taken, do not keep it in the house. Do not throw it away in the trash, since children may still be able to get it. The safest ways to discard these unneeded medicines are to flush them down the toilet or grind them in a garbage disposal with a lot of water.

For your own health, be sure to read the label of the prescription or nonprescription medicine fully before you take the first dose. Never take any medicine when you cannot read the label because you don't want to put on glasses or because the lighting is dim. Don't let young children watch as you take medication. They may attempt to mimic your behavior when you are not watching. When you are taking medication, and especially when you have the safety caps off of bottles, never leave to answer the phone or doorbell without first replacing the cap. Children often choose a time when a parent or caretaker is busy to explore forbidden objects.

The National Poison Control Hotline

Remember the national poison control hotline number: (800) 222-1222. Calling this number places you into contact with a team of dedicated professionals who can provide the most current, correct advice.

PHARMACY STAMP

Remember, if you have questions, Consult Your Pharmacist.

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