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Advertised-Product Liability:

Poisoning by Common Household Products

Robert D. Mercer, M.D.*

THE DANGER OF POISONING, especially of children, is widespread. In Greater Cleveland, Ohio alone, during 1957 (excluding deaths from automobile accidents) 43 children were accidentally killed. Eleven of those deaths were due to poisoning; all of the children being in the age group from one year to six years. In a recent six-month period the Poison Information Center of The Academy of Medicine of Cleveland received 1,535 calls concerning treatment for accidental poisoning of children. This figure by no means indicates the total number of cases of poisoning that actually occurred. These terrible statistics can be sharply reduced by proper labeling of products, and by common sense handling and storage of dangerous products. Advertising of such products also should contain warnings of danger where such warnings are desirable for the public protection.

Poisons Ingested by Children. The variety of substances that children will take into their mouths almost defies the imagination, and certainly seems to bear no relation to intrinsic attractiveness or taste. Materials recently ingested by children in the City of Cleveland includes such unlikely things as artificial moss, acid from a storage battery, Christmas tree ornaments, floor wax, bubble-bath salts, automobile radiator fluid, moth balls, and cement. The toddler in the second half of his first year of life is a born adventurer, who seems bent upon testing everything in the household with an exploring tongue and finger, and everything within reach goes into his mouth. The two year old child frequently chews on surfaces painted with paints containing lead and lead poisoning becomes a common and serious problem.

Drugs. Since about 35 percent of deaths due to poisoning involve the ingestion of substances used as medicine, our attention in this discussion is focused largely upon drugs. Some of our most common medicines are extremely dangerous to children, since they are so readily available and their potential harm is recognized by so few of us. The best example is aspirin. Aspirin can kill! Yet, how many among us—physicians or not—

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are cognizant of this hazard? Aspirin is to be found in nearly every household and usually is within fairly easy reach of the athletic and curiosity-filled two or three year-old child. In the Greater Cleveland area in the six-month period referred to previously, 133 children were poisoned by aspirin, and in 1957 there were six deaths due to aspirin.

Aspirin is acetylsalicylic acid, which is a stimulant of the central nervous system. Among the early specific effects of overdosage of aspirin is a notable increase in the depth and the rapidity of breathing; a change, which, in turn, upsets the delicate acid-base balance of the fluids of the human body. The fluids become more basic and, subsequently, through the digestion of aspirin and its effects on the kidney and the liver, a compensatory change reverses the imbalance to a dangerously overacidic one. This shifting action has led to considerable confusion in regard to the appropriate treatment of aspirin poisoning.

Perhaps the most vicious type of salicylate poisoning is that from methyl salicylate, commonly known as oil of wintergreen. Its delicious fragrance is deceptive. It frequently is an ingredient of liniments and counterirritants meant for external application only to ease aching muscles. The concentration of the salicylate in oil of wintergreen is exceedingly high, and it has been known to cause the death of a small child who accidentally drank as little as a scant teaspoonful.

Other common medicines that may seriously poison children include patent cold remedies, sedatives, vitamins, tranquilizers, antibiotics, dandruff removers, and "heart medicine." Cathartics, particularly those disguised in candy or chewing gum, frequently are taken in an overdosage, but thanks to a certain salutary effect, serious symptoms of overdosage seldom are observed.

Despite the fairly rigid testing and control in the manufacturing of medical products, we are constantly learning more about the effects of poisoning from overdosage or accidental ingestion. For example, the fact that the commonly used medications containing iron for anemia can cause serious poisoning and death has been recognized only within the past few years. Within recent months it was shown that one of the new medicines used to prevent vomiting can produce serious signs of damage to the brain, even in the dosages recommended by the manufacturer. As a general rule, no medicine should be considered completely harmless, and small children should be safeguarded by having all medicines made completely inaccessible to them, to preclude the danger of perhaps fatal carelessness.

The current trend of pharmaceutical companies to market more and more medicines in appealing candy flavors, or to manufacture vitamins in multicolored, candy-like pills, has been condemned by some as increasing the hazard of accidental poisoning. However, in our experience and in that of others, the actual form of the medicine does not seem to be a particularly important factor; the significant feature is its *accessibility*. The two year-old toddler seems to be equally entertained by sucking an old paint brush or a piece of good hard candy.

Household Agents. Substances used in the kitchen and laundry are other common sources of serious poisoning in childhood. Among the most wickedly harmful and dreaded are the powerful caustic agents used by the do-it-yourself home handyman to clean grease-clogged drains. These potent caustics in contact with moist surfaces when swallowed, produce heat, and react with an intensity that causes devastating corrosion of the soft tissues of the mouth, the esophagus, and the stomach. Although rarely fatal, the scarring and contracture of these soft structures lead to prolonged invalidism, and the necessity for medical treatment for months, for years and, in some instances, for the duration of life. The potential seriousness of such injury is so great that parents of children who are five years old and younger should never have these caustics anywhere—even high up or hidden—in their households. The cost of an occasional plumber's service charge is as nothing in comparison to the potential tragedy and the cost of specialized, long-drawn out medical and hospital care. Garment, upholstery, and carpet cleaners and solvents such as ammonia, bleach, alcohol, patented cleaning fluids containing benzine or carbon tetrachloride, furniture polish, floor wax, disinfectants, deodorizers, lighter fluids, shoe polish, and many other useful substances contain poisons and usually are readily available in everyone's kitchen or basement. All have at some time been ingested, with apparent relish, despite their offensive tastes or odors.

A common booby trap in the laundry is an ordinary household cup which mother has filled with chlorine or ammonia bleaching fluid. The cup is innocently picked up by the thirsty youngster who eagerly swallows its insidiously potent contents. The most devastating burn of the entire upper gastrointestinal tract which we have ever seen resulted from the swallowing of a highly concentrated acid that had been stored in an empty soft-drink bottle.

The storage area for paints, paint removers, and brush cleaners also is filled with potential disability or death. The garage and garden areas are loaded with booby traps for adults as well as youngsters. Many of our new insecticides, for instance, are so miraculous in their efficiency that they can kill insects and human beings alike.

We are not completely safe even among those things that give beauty to our household and gardens. Poisonous plants are accessible, although fortunately the incidence of symptoms from eating them is relatively rare. For example, the berries of the common privet, the inner bark of the black locust, the bark of the elderberry, various plants of the nightshade family, and several plants of the lily family, are poisonous, not to mention the vagrant toadstools in the lawn.

One of the common modes of poisoning is the thoughtless substitution of some empty container that originally held a harmless product. An example is the storage of carbon tetrachloride, a deadly poison used for cleaning, in an empty whisky bottle. A man in urgent need of a drink may down several generous measures of carbon tetrachloride before he realizes that it is not the bonded stock to which he is accustomed. This is particularly unfortunate since the combination of alcohol and carbon tetrachloride is devastating in its action on the liver and the kidneys.

Unfortunately, it is not commonly known that not all potentially toxic or lethal chemical substances are labeled with a skull and cross bones. Moreover, many labels refer to toxicity in the fine print alone, while others give no warning whatsoever of death-dealing possibilities. Modern chemical and pharmaceutical companies produce thousands of preparations for human use, and it is unlikely if not impossible for anyone to have more than a superficial knowledge of the potentially toxic effects of a given patented substance. For example, about 70,000 cosmetic preparations have been marketed, and from 1,000 to 2,000 new ones appear each month. Fortunately, for the physician confronted with a case of chemical poisoning, a good reference book¹ is available, and most manufacturers willingly supply information in response to an urgent call.

Antidotes and Treatment. When drug poisoning does occur, it is of considerable importance to determine just what and

¹ Gleason, Gosselin, and Hodge, *Clinical Toxicology of Commercial Products; Acute Poisoning (Home & Farm)* 1160 (Baltimore: Williams & Wilkins Co., 1957).

how much was ingested and when the accident occurred. It is axiomatic that no one ever throws out the offending can or bottle—it should be saved for possible clues in regard to amount taken and to ingredients.

There is no universal antidote for poisons. Usually, *immediate evacuation of the person's stomach contents* is one of the first most effective measures that can be taken; *but there are important exceptions to this practice*. Vomiting may be brought about by household emetics, such as a teaspoonful of mustard in a glassful of plain warm water (or with table salt), but nothing is quite as effective as the gentle pressure of a finger in the back of the throat. Syrup of ipecac is one of the few household medicines that can safely be left within the reach of children; when swallowed it almost always causes vomiting. The usual dosage is one teaspoonful every 10 minutes until the teaspoonful going down meets one coming up. Physicians in emergency rooms frequently will pump out or wash out the stomach after poison has been ingested, but nature's method of cleansing the stomach by vomiting is probably far more effective.

Vomiting should not be induced when a powerful acid or alkali has been swallowed. To force ingestion of such soothing substances as milk or egg white often is helpful in first aid, but the use of specific antidotes is best prescribed by the physician. Specific antidotes are few, and their value has been somewhat overestimated, but in poisoning by cyanide or mercury the antidotes may be lifesaving. Occasionally the artificial kidney has been used, either to remove the toxic material from the blood stream or to maintain life when the natural kidneys have been temporarily rendered useless. For example, a patient is now recovering with the help of the artificial kidney after 20 days of almost total nonfunctioning of the kidneys.

Prophylaxis. Since the world we live in is full of poisons, it behooves us all to familiarize ourselves with some of the measures we can take to prevent accidental poisoning. The best means of prevention is to have knowledge of the problem, to observe strict rules of protection, and to educate our children to the dangers involved. No household should serve as a storehouse for outmoded or ancient medicines, which often become highly concentrated with age. It is advisable to clean the medicine shelf frequently, and to dispose of medicines no longer actually needed.

The medicine cabinet should be securely locked immediately after items have been taken from or placed in it. Minimum amounts of cleansing agents should be stored in properly labeled and covered containers, and all cleansing and polishing agents and painting supplies should be kept under lock and key. These are obvious measures. Progress in protecting children could be made on a larger scale.

Proper Labeling. Manufacturers always should identify, on the label, the chemical constituents of their products, and give antidotes if possible. The law as to this should be emphatic. We have wasted precious hours trying to find out what was in a patented dog-tick remover before we found out that the suffering child had swallowed a powerful and lethal poison. All substances known to be poisonous should be so labeled. Toxicity ratings can be easily worked out and substances known to be unusually toxic should be so identified. For example, para-oxon is an organic phosphate that is used in commercial insecticides: one drop of this substance splashed in the eye can cause death.

In addition to careful labeling, the amount of a potentially dangerous substance that can be purchased should be limited. There seldom is justification for having large amounts of barbiturates or a large bottle of aspirin in the house. The monetary savings on a "giant economy size" might contribute indirectly to the death of a child. Substances such as the highly dangerous caustics used to clean drains could well be dispensed in containers holding just enough for one application; it is storage in the home, of such agents, that is hazardous. Ingenious fastenings should be devised for containers in order to make it difficult for children to gain access to the poisons within.

Summary and Conclusion

Accidental poisoning, especially among children, is a problem that is of importance to us all. Our carelessness or unimaginativeness may bring within easy reach toxic household substances such as medicines, cleansing and bleaching fluids, paints and solvents. It is hoped that the incidence of accidental poisoning in the home can be reduced by pointing out the areas of danger, and by recommending simple precautions.