Children are curious. Children tend to enjoy new things and always question “why” things happen the way that they do. Children love to explore their surroundings and use their senses in their exploration. Thus, it is not surprising that young toddlers are able to spot a small tablet under a couch and put it in their mouths to discover what it is. Although this may be within children’s nature, it is not always safe. Pediatricians use this information during their anticipatory guidance to parents to warn them of the likelihood of such an event occurring.

According to the National Poison Data System, poison control centers receive more than 2 million calls per year with more than 50% for children younger than age 6 years. Ingestion of medications (over-the-counter and prescription medications), household chemicals, and environmental toxins/toxicants account for a large majority of these exposures. This issue of Pediatric Annals addresses the need for a watchful eye not only on the toddler, but on all children and adolescents.

Poison control centers, staffed by nurses, pharmacists, and medical toxicologists, can determine the risk of harm from the exposures. Thankfully, most curious toddlers can be managed at home due to the low-risk exposures. However, this is not always the case. Poison prevention education is necessary to prevent the high-risk exposures from occurring as we know that fatalities continue to happen. In addition, curiosity continues into school-aged children and adolescents who have high-risk behaviors leading to greater morbidity and, unfortunately, mortality.

Pediatricians caring for the child with an ingestion must not only know the age of the child, but also the pharmacology of the drug in toxic doses, the interactions that the drug may have with concomitant exposures, the intent of the ingestion (as this can influence dose), and what is available to treat the patients. Poison control centers can help. Physicians caring for these patients not only must consider Airway-Breathing-Circulation, but should also understand Decontamination and Elimination. Thrown into the alphabet soup is the use of a laboratory for diagnosis and the possible need for antidotes for treatment.

Decontamination largely consists of activated charcoal (without a cathartic) only if the patient presents within 1 hour after ingestion. Research has shown that activated charcoal is much less effective after this time and may result in harm if the patient is already symptomatic from the ingestion. Emetics, cathartics, and lavage are strongly discouraged. Multiple dose-activated charcoal and/or whole bowel irrigation may be indicated after discussion with a medical toxicologist.

Enhanced elimination of the drug from the body may be indicated depending on the drug pharmacokinetics or chemical toxicokinetics (ie, volume of distribution, protein binding). In addition, alkalization may be indicated depending on the drugs chemical nature (see Hines article on aspirin, this issue). But, it doesn’t always help, and it may harm.

Treatment is based on the pharmacodynamics of the drug/chemical and the symptoms that result. Patients may not be able to tell you what they took or may not tell you the truth. Thus, many emergency medicine physicians tend to rely on the urine drug screen. However, this is invariably negative in pediatrics as the common immunoassay assesses for drugs of abuse (eg, cocaine, amphetamine/methamphetamine, benzodiazepines, opiates [specifically morphine], and tetrahydrocannabinol) and not drugs that are commonly ingested by children. These drug-of-abuse screens have many false-positive and negative findings resulting in the inability of the practitioner to know what the patient ingested based on this laboratory test. The patient’s symptoms and other laboratory findings are more diagnostic than the urine drug screen.

Few ingestants have antidotes available. Treatment is largely symptomatic and supportive and is directed at overcoming the pharmacologic effect of the ingested drug. However, antidotes are available for high-risk poisons such as opiates, sulfonylureas, antipsychotics, organophos-
phates, and anticholinergics, such as diphenhydramine.

Any discussion of pediatric ingestions would be remiss without emphasizing the need for mental health services for children. It is known that adolescent mental health diseases are on the rise, which leads to substance use and suicide attempts. Over the past decade, calls regarding school-aged children and adolescents with the primary reason of self-harm have increased. Although fatalities are rare in the young child with unintentional exposures, older children and adolescents with intentional exposures, whether misuse, abuse, or suicide attempts, are more common and deserve notice. Additionally, the intentional exposure is occurring at younger ages with substance use and suicide attempts starting as young as age 8 years. Poison prevention education is prominent at the 1- and 2-year well-child examinations, but education to adolescents is difficult given their infallible beliefs and decreased health care visits.

Lastly, the combined knowledge of pediatrics and toxicology is seen in a small subset of pediatricians. Currently, only 21 pediatricians in the United States are board-eligible or board-certified in medical toxicology. Many medical toxicologists are trained in adult emergency medicine and practice acute care medicine in emergency departments and poison control centers. Developmental pharmacology, toxicology, and environmental health are becoming less known among pediatricians, which may serve as a detriment in the future care of the poisoned child. Training sites are available for pediatricians, but few enter the field to aid in advocacy and patient management.

Despite poison prevention education, the curious nature of children and adolescents continues to lead them to ingestions of common and not-so-common drugs and chemicals that can cause harm. Pediatricians must be prepared to discuss these dangers with patients and families not only as it pertains to the unintentional exposures in the young child, but also the increasing intentional exposures in young children and adolescents. The articles in this issue only give the pediatrician a glimpse into the problem, but I hope they will stimulate interest in learning more on how to best care for our patients.

REFERENCE

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