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**The Changing Indications of Gastrointestinal Decontamination
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Kennon Heard

Gastrointestinal (GI) decontamination is commonly used in the treatment of the poisoned patient. Although the practice is widely accepted, the science behind the recommendations is limited. This article describes commonly used techniques for GI decontamination and critically reviews the studies evaluating these treatments.

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David L. Eldridge and Christopher P. Holstege

This article examines the role of common laboratory tests in the evaluation of a poisoned patient. Numerous laboratory tests may be useful to clinicians caring for poisoned patients. Clinicians should not order a broad range of tests indiscriminately, but rather thoughtfully consider appropriate tests. The results of the tests should be reviewed in the context of the clinical scenario.

**Differentiating the Causes of Metabolic Acidosis
in the Poisoned Patient** 31
Bryan S. Judge

Numerous drugs and toxins may induce the development of a metabolic acidosis. The treating physician should be cognizant of the many compounds that can produce metabolic acidosis following an overdose or an accidental exposure, or with therapeutic use. Knowledge and comprehension of the substances associated with metabolic acidosis will facilitate the diagnosis and treatment of poisoned patients.

Acetaminophen Poisoning

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Adam K. Rowden, Jeffrey Norvell, David L. Eldridge,
and Mark A. Kirk

Acetaminophen (acetyl-para-amino-phenol or APAP), an antipyretic and analgesic, is a common component in hundreds of over-the-counter and prescription medications. The wide usage of this drug results in many potentially toxic exposures. It is therefore critical for the clinician to be comfortable with the diagnosis and treatment of APAP toxicity. Prompt recognition of APAP overdose and institution of appropriate therapy are essential to preventing morbidity and mortality.

Heavy Metal Poisoning: Clinical Presentations and Pathophysiology

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Danyal Ibrahim, Blake Froberg, Andrea Wolf,
and Daniel E. Rusyniak

Humans have had a long and tumultuous relationship with heavy metals. Their ubiquitous nature and our reliance on them for manufacturing have resulted at times in exposures sufficient to cause systemic toxicity. Their easy acquisition and potent toxicity have also made them popular choices for criminal poisonings. This article examines the clinical manifestation and pathophysiology of poisoning from lead, mercury, arsenic, and thallium.

Toxicity Associated with Carbon Monoxide

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Louise W. Kao and Kristine A. Nañagas

Carbon monoxide is an insidious poison that accounts for thousands of deaths each year in North America. Clinical effects may be diverse and include headache, dizziness, nausea, vomiting, syncope, seizures, coma, dysrhythmias, and cardiac ischemia. Children, pregnant women, and patients who have underlying cardiovascular disease are particularly at risk for adverse outcomes. Treatment consists of oxygen therapy, supportive care, and, in selected cases, hyperbaric oxygen therapy.

Cocaine-Induced Chest Pain

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James H. Jones and William B. Weir

Cocaine-associated chest pain is a clinical entity that crosses all socioeconomic groups and hence will be encountered by many physicians. The initial evaluation and treatment of cocaine-induced chest pain are similar to those of patients who have non-cocaine-induced chest pain, but there are several notable exceptions. This article reviews the pathophysiology, evaluation, management, and disposition decisions unique to patients presenting with cocaine-induced chest pain.

New Drugs of Abuse in North America

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Rachel Haroz and Michael I. Greenberg

The term “drugs of abuse” usually brings to mind traditional street drugs, such as cocaine, heroin, marijuana, and methamphetamine. The drug scene, however, is constantly evolving. As various law enforcement agencies pursue and dismantle distribution and production organizations of the usual drugs of abuse, dealers and users are turning to less known, more accessible, and often currently licit substances. The widespread growth of the Internet with its vast distribution of information has increased the accessibility of a host of substances and facilitated synthesis and production of various substances by individuals. This article discusses several new and emerging abused substances, including new synthetic variations, plants, and pharmaceuticals diverted for abuse.

Hyperthermic Syndromes Induced by Toxins

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Daniel E. Rusyniak and Jon E. Sprague

Normal thermogenesis requires a complex interaction between systems that generate and dissipate heat. Serving as director of thermogenesis, the hypothalamus activates the sympathetic nervous system along with the thyroid and adrenal glands to respond to changes in body temperature. Working in concert, these systems result in heat generation by uncoupling of oxidative phosphorylation, combined with impaired heat dissipation through vasoconstriction. In this article, the authors discuss serotonin and sympathomimetic syndromes, neuroleptic malignant syndrome, and malignant hyperthermia and how these syndromes affect the hypothalamic and sympathetic nervous systems, resulting at times in severe hyperthermia. Current treatment recommendations and future trends in treatment are also discussed.

Chemically Induced Seizures

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Brandon Wills and Timothy Erickson

Drug- and toxin-associated seizures (DTS) may result from exposure to a wide variety of agents. Most DTS can be managed with supportive care. First-line anticonvulsant therapy should include benzodiazepines, unless agents require a specific antidote. Phenytoin is generally not expected to be useful for DTS and in some instances may be harmful. In this article the authors discuss the pathophysiology of DTS, the potential differential diagnosis, and the clinical presentation. They also review selected agents that cause DTS and provide an overview of how the clinician should approach the management of patients who have DTS.

Brown Recluse Spider Envenomation

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R. Brent Furbee, Louise W. Kao, and Danyal Ibrahim

Brown recluse spider bite is a common diagnosis in almost every state in America. In fact, cases have been reported in areas where

the spider has never been seen. A review of medical literature reveals that most current concepts regarding brown recluse spider envenomation are based on supposition. In this article, we attempt to review critically our present understanding of brown recluse bites with a focus on the published evidence.

Hepatotoxicity Associated with Herbal Products

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R. Brent Furbee, Kevin S. Barlotta, Melrose Kanku Allen, and Christopher P. Holstege

A significant number of herbal products have been associated with hepatotoxicity. Attribution of liver injury to a specific herbal product may be difficult. There are few clinical or laboratory manifestations that specifically suggest that liver injury is the result of a specific herbal. Compounding this difficulty is that the patient may have liver disease from another cause, may be consuming other potentially hepatotoxic products, or may be using a contaminated herbal product. The most important clue often is the temporal relationship between initiation of the herbal product and the appearance of liver injury; of equal importance is the resolution of the injury following withdrawal of the herbal product.

Criminal Poisoning: Munchausen by Proxy

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Christopher P. Holstege and Stephen G. Dobmeier

The diagnosis and subsequent prosecution of Munchausen by proxy (MBP) cases require the collaborative teamwork of health care teams, laboratory personnel, law enforcement, and social services. Poisoning occurs in a significant number of the MBP cases with a diverse variety of agents used. To aid laboratory professionals in determining the appropriate toxicology tests to perform in such criminal cases, health care professionals must focus their testing requests on substances that correspond to the victim's signs, symptoms, and ancillary test values. This article reviews MBP, with particular focus on poisoning agents that have been used in past reported cases.

Criminal Poisoning: Medical Murderers

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R. Brent Furbee

It is impossible to determine the true incidence of homicides that occur within health care facilities. Over the years there have been numerous documented examples of health care providers preying on helpless patients. For several reasons, the health care system has been inadequate in its response. This article reviews some of those cases, the hospitals' responses, and the outcome of investigations, to reveal the common factors that can identify the warning signs of these tragic events.

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