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 Christopher P. Holstege and Daniel E. Rusyniak

Gastrointestinal Decontamination 1067
 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.

Utilizing Diagnostic Investigations in the Poisoned Patient 1079
 David L. Eldridge, Trey Dobson, William Brady,
 and Christopher P. Holstege

This article examines the role of common diagnostic tests in the evaluation of a poisoned patient. Numerous diagnostic 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.

Metabolic Acidosis: Differentiating the Causes in the Poisoned Patient 1107
 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.

Drug-Induced Q-T Prolongation

1125

Louise W. Kao and R. Brent Furbee

Drug therapy may induce Q-T prolongation by alteration of potassium ion currents in cardiac cells, resulting in abnormal repolarization. Q-T prolongation, whether congenital or acquired, has been associated with the development of the malignant dysrhythmia Torsade de Pointes (TdP), which may result in sudden death. Recent regulatory actions and drug withdrawals due to Q-T prolongation or TdP have focused attention on this issue. Although our understanding of the pathophysiology continues to evolve, both patient and medication factors contribute to the individual risk of drug-induced Q-T prolongation or TdP. The clinician should be aware of these issues when prescribing new drugs and should weigh the risks and benefits carefully when prescribing drugs known to prolong the Q-T interval.

Updates on Acetaminophen Toxicity

1145

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.

Carbon Monoxide Poisoning

1161

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.

Envenomations

1195

Eunice M. Singletary, Adam S. Rochman,
Juan Camilo Arias Bodmer, and Christopher P. Holstege

Numerous animals in North America are capable of envenomating humans. This article reviews the potential marine, crotalid, and arachnid envenomations that can occur in North America and

discusses the relevant approach to patients who manifest toxicity. Appropriate therapy is discussed, and treatment that may result in no benefit or potential harm is highlighted.

Toxicity and Drug Interactions Associated with Herbal Products: Ephedra and St. John's Wort

1225

Christopher P. Holstege, Kara Mitchell, Kevin Barlotta, and R. Brent Furbee

The use of herbal products has dramatically increased over the past decade, driving physicians to become educated in regards to potential herbal complications and drug interactions. There are numerous products currently on the market that have been associated with toxicity. This article focuses on two herbs: ephedra and St. John's wort. Products containing these herbs have been extensively used in North America and each allows emphasis of unique issues pertaining to herbals.

Emerging Drugs of Abuse

1259

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.

Toxin-Induced Hyperthermic Syndromes

1277

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.

Drug- and Toxin-Associated Seizures

1297

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.

Cocaine-Associated Chest Pain

1323

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.

Cerebrovascular and Cardiovascular Complications of Alcohol and Sympathomimetic Drug Abuse

1343

Ayrn D. O'Connor, Daniel E. Rusyniak, and Askiel Bruno

Alcohol abuse has been linked to intracranial hemorrhage, cardiomyopathy, and hypertension. Some studies have shown a dose-response relationship, with increasing levels of abuse associated with greater risk for disease. Mild-to-moderate drinking, however, is associated with a decreased risk for cerebral infarction and cardiovascular disease. Abuse of sympathomimetic drugs may lead to acute hypertension, focal arterial vasoconstriction, and thrombosis, resulting in ischemic or hemorrhagic stroke, cardiovascular complications, and death. In this article the authors discuss the associated risks for cerebrovascular and cardiovascular disease in users of alcohol and sympathomimetic drugs.

Perceived Poisons

1359

Kristine A. Nañagas and Mark A. Kirk

Although poisoning is a significant health concern, when fears of poisoning become disproportionate to the actual risks, the results can be detrimental to both public health and that of the individual. When people become convinced that they are suffering ill effects of toxins, they may become symptomatic even when no exposure is present. Fear of poisoning may result in an acute outbreak of

unexplained illness in many individuals at once, or manifest as a chronic condition wherein people remain symptomatic despite no apparent effects of toxicity. Perceived poisoning may escalate medical costs, threaten commerce, and limit the availability of goods and services. Unfortunately, treatments have not been established that consistently limit the development and spread of perceived poisoning.

New Developments in Antidotes

1379

Nicole L. Ries and Richard C. Dart

Recent times have seen a resurgence of interest in antidotes. New antidotes have been introduced and new developments on older agents have occurred. This article addresses antidote stocking, fomepizole, glucagon, hydroxocobalamin, octreotide, physostigmine, polyvalent crotaline snake antivenom, and Prussian blue.

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