



Predictors of Short ICU Stay for Diabetic Ketoacidosis Patients

Emergency department (ED)-based intensive care units (ICU) are an emerging care delivery model designed to provide early, aggressive critical care services in the ED setting. This study examined whether diabetic ketoacidosis (DKA) is a diagnosis that could be optimally treated in an ED-ICU. A retrospective, cross-sectional study was conducted to identify clinical variables associated with short ICU stays in patients with DKA, who commonly require ICU-level care. The results showed that patients with DKA who had short ICU stays had higher initial bicarbonate levels and were more likely to have medication nonadherence than DKA patients requiring prolonged critical care. These variables may help to identify patients with DKA who would be best treated in an ED-ICU.

Blunt Thoracolumbar-Spine Trauma Evaluation in the ED

The aim of this study was to quantify the diagnostic accuracy of the injury mechanism, physical examination, associated injuries, clinical decision aids, and imaging for evaluating blunt thoracolumbar-spine (TL-spine) trauma patients. Diagnostic predictors were analyzed with a meta-analysis of sensitivity, specificity, and likelihood ratios reported in studies identified through a literature search. The analysis revealed that computed tomography (CT) is more accurate than plain films for detecting TL-spine fractures. Injury mechanism, physical examination, and associated injuries alone are not accurate to rule-in or rule-out TL-spine fractures.

Evaluation and Management of Small Bowel Obstruction

Small bowel obstruction is a common condition that often requires admission from the ED. This review article, based on the current literature, provides a focused overview of the Emergency Medicine approach to the evaluation and management of small bowel obstruction. Small bowel obstruction results from external or internal compression of the small intestine, causing an accumulation of fluid and gas proximal to the point of obstruction, and potentially may progress to ischemia and perforation. Adhesions are the most common cause. The most reliable history and examination findings are discussed along with diagnostic aids and management strategies. Surgery is needed for patients with strangulation of the small bowel and those who fail nonoperative therapy.

Predicted Risk for Exercise-Associated Exacerbation of Hyponatremia from Over-Hydration of Ultramarathon Runners

Exercise-associated hyponatremia is common after ultraendurance events and the condition can be exacerbated by aggressive intravenous (IV) hydration. This study predicts the percentage of athletes at risk for exacerbation of exercise-associated hyponatremia after a 161-km ultramarathon. The study found that a small percentage (3%) of the ultramarathon finishers were at risk for exacerbation of exercise-associated hyponatremia, if aggressively hydrated after the ultramarathon. The athletes most at risk for becoming symptomatic with exercise-associated hyponatremia were hypervolemic. Whether in the field or hospital setting, IV hydration of an athlete after an ultramarathon carries a notable risk for exacerbating exercise-associated hyponatremia.

Dangers of Spear Tackling

“Spear tackling” is known to be a risk factor for cervical spine injury due to axial loading of the neck when a player is spear tackled while playing football. Although spear tackling was banned from American football in 1976, football-associated spine injuries continue to be reported. This article reports the case of a 14-year old male high school football player who presented to the ED for a neck injury sustained after being spear tackled during a football game. He had no neurological symptoms and met the NEXUS criteria for omitting X-ray evaluation. However, the description of the mechanism of injury, identified as spear tackling, led to the ordering of cervical radiographs, which revealed a C3 fracture. This case highlights the importance of recognizing high-risk mechanisms for cervical spine injury.

Clinical Cybersecurity Training Through Novel High-Fidelity Simulations

As health care continues to adopt more Internet connected medical devices, the risk of cybersecurity vulnerabilities resulting in patient harm grows. This study successfully used simulated clinical cases of compromised medical devices to demonstrate examples of patient harm as a result of malicious hackers. None of the lead physicians in the simulation identified the compromised medical device as the source of patient harm. Using simulations may be an effective education exercise for exposing clinicians to the cybersecurity risk associated with current and next-generation Internet-connected medical devices.