Acute Hyperglycemic Crisis In The Pediatric Patient
Tothy A, Ryan, M. August 2009; Volume 6 Number 8
This issue of Pediatric Emergency Medicine Practice provides the most up-to-date guidelines and the results of evidence-based studies in order to assist the pediatric emergency clinician in caring for patients presenting with acute hyperglycemic crises. For a more detailed and systematic look at the latest evidence on acute hyperglycemic crisis in the pediatric patient as well as other considerations such as the physical examination, clinical pathways, and other laboratory tests not noted here, see the full text article at www.ebmedicine.net.

<table>
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<th>Key Points</th>
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<td>Include ABCs, mental status, evaluation for infection, and assessment of fluid status in your initial evaluation of a patient with suspected DKA.</td>
<td>Initial laboratory assessment should include: plasma glucose, ABG, electrolytes, Ca/Mg/Phos, BUN and creatinine, serum and urine ketones, serum osms, and CBC with differential. Disease severity should be classified on the basis of acid/base balance status. 1,47,48,61</td>
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<td>Focus fluid administration in patients with DKA on accurate assessment of fluid balance, treatment of impending shock, and slow replacement of remaining losses. 18,19,32,34,60</td>
<td>The proposal that fluid resuscitation is related to cerebral edema is supported by potential pathophysiologic explanations, retrospective studies, and a few prospective studies. A correlation has been shown in some studies, but a cause and effect has not been demonstrated. 1,47,48, 57</td>
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<td>Consider a criteria-based assessment for cerebral edema.</td>
<td>In cases of suspected or proven cerebral edema, mannitol is the therapy of choice. There is some evidence to suggest hypertonic saline may also be beneficial. 1,10,14,15, 17, 45,57,71</td>
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<td>Continue insulin therapy for patients with glucose levels of &lt;250 if ketones are still present. To decrease risk of hypoglycemia, add dextrose to fluids when serum glucose approaches 250.1,47,48</td>
<td>Bolus insulin therapy should be avoided in pediatric patients. Initial dosing should start at 0.1units/kg/hr. 40-42</td>
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<td>Determine the timing of potassium supplementation by the presenting serum concentration in order to limit the risk of life-threatening arrhythmias. 1,47,61</td>
<td>Although theoretically logical, the replacement of phosphorous and bicarbonate are not supported by literature. 1,20,47,61</td>
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<td>It is important to recognize Hyperglycemic Hyperosmolar State (HHS) as a unique and often missed entity which can manifest with significant disturbances in electrolytes and fluid status.</td>
<td>HHS is also know as hyperosmolar nonketotic state or hyperosmolar coma. Treatment of HHS is largely similar to DKA with several important distinctions.</td>
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<td>Admit patients that meet the criteria for severe DKA to a pediatric intensive care unit or a floor with personnel specifically trained in the management of DKA and identification of impending cerebral edema.1,47</td>
<td>Some recent studies have looked at methods to determine low risk patients who may warrant either lower levels of in-hospital care or potential discharge to home depending on initial improvement with therapy. Until more studies are conducted, it is advisable to admit all patients who meet criteria for moderate to severe DKA. Additionally, it is advisable to admit all newly diagnosed diabetics for reasons including increased risk of cerebral edema and need for education for this significant lifestyle change. 76,77</td>
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* See reverse side for reference citations.
REFERENCES

19. Harris GD, Fiordalisi I. Physiologic management of DKA. (Consensus guidelines)
20. Linares MY, Schunk JE, Lindsay R. Pediatric Emergency Medicine Practice subscribers: Are you taking advantage of all your subscription benefits? Visit your free online account at ebmedicine.net to search archives, browse clinical resources, take free CME tests, and more. (Prospective case series; 149 cases in 231 patients)
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