

Care of Metabolic and Endocrine Conditions in the Observation Unit



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KEYWORDS

- Metabolic conditions • Observation unit care • Endocrine condition • Hyperglycemia • Hypokalemia

KEY POINTS

- Accelerated therapeutic protocols targeting metabolic conditions are ideal for observation unit care.
- Because many conditions, such as hypokalemia and hyperglycemia, have little to no diagnostic uncertainty, the care in unit is often straightforward.
- Some components of care for the endocrine condition may exhaust services, such as phlebotomy.

Accelerated therapeutic protocols targeting metabolic conditions are ideal for observation unit care. Because many conditions, such as hypokalemia and hyperglycemia, have little to no diagnostic uncertainty, the care in unit is often straightforward. To be sure, candidates for this level of care ideally have a more minor manifestation of their chronic condition, thus being sure about the overall severity of the current problem is paramount in the evaluation of these patients. Additionally, some components of care for the endocrine condition may exhaust services, such as phlebotomy. Hence, this discussion focuses on resource utilization and management considerations for the purposes of matching the level of care to the severity of the conditions. When carefully selected candidates are cared for in the observation unit, hospital resources can enable a safe, efficient hospital stay.

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HYPERGLYCEMIA

Case Study

Gerald Wilson is a 52-year-old man who lives in transitional housing. He complains of weakness and thirst. He says that it's odd that he's also making multiple trips to the bathroom at night to urinate. He has been rationing his insulin 70/30 mm Hg for it to last until his caseworker provides him with a new identification card. His card was stolen a few weeks ago, along with most of his belongings that he kept in a backpack. In the emergency department (ED) his vital signs are unremarkable. His laboratories are significant for a blood sugar of 469 mg/dL and an anion gap of 13.

Although treatment of hyperglycemia has a wide range of approaches in treatment of the acute phase, the Emergency Department Observation Unit (EDOU) performs well in delivering both rapid and standardized care. Currently, the number of EDOUTs using hyperglycemia care pathways is largely unknown; but, in the author's experience, many, if not most units do use some form of standardized approach to patients with hyperglycemia. Most EDOUTs should be capable of treating most forms of hyperglycemia, from new-onset diabetes to mild or moderate diabetic ketoacidosis (DKA).

Patient Evaluation Overview

In the ED setting, patients with hyperglycemia can present in a variety of ways. Classically, patients with hyperglycemia report polyuria, polydipsia, and polyphagia, features that result from increased osmotic burden. Stabilization and evaluation for possible underlying causes of hyperglycemia is the cornerstone of initial management. Hyperglycemia still poses a large mortality burden, particularly in elderly individuals.¹ Laboratory assessment of serum electrolytes will yield several pieces of important information used to direct further care. The typical laboratory findings of DKA and hyperosmolar hyperglycemic state (HHS) are listed in [Table 1](#).² The presence of hyperglycemia should be the initial finding that prompts further evaluation. The level at which there should be concern for hyperglycemic emergencies is generally accepted as more than 250 mg/dL. However, recent data show that in the setting of known diabetes, the threshold should be closer to 300 mg/dL. When the serum glucose levels exceed this threshold, the anion gap (AG) and serum electrolytes are key to choosing which patients may benefit from the observation unit setting.

Table 1
Electrolyte abnormalities for hyperglycemic crises

	Mild DKA	Moderate DKA	Severe DKA	HHS
Arterial pH	7.25–7.30	7.00–7.24	<7.00	>7.30
Serum bicarbonate	15–18	10–15	<10	>18
Urine ketone	Positive	Positive	Positive	Small
Serum ketone	Positive	Positive	Positive	Small
Effective serum osmolality	Variable	Variable	Variable	>320
Anion gap	>10	>12	>12	Variable
Mental status	Alert	Alert/drowsy	Stupor/coma	Stupor/coma

Abbreviations: DKA, diabetic ketoacidosis; HHS, hyperosmolar hyperglycemic state.

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