

Consider Subcutaneous Insulin to Manage DKA

This complimentary article from Hospital Pharmacist's Letter is being provided to readers of Prescriber's Letter, who may find its content relevant to their practice.

You'll hear renewed **debate about the optimal insulin regimen for treating diabetic ketoacidosis (DKA) in adults.**

A recent retrospective study suggests that subcutaneous insulin, instead of IV, reduces ICU admissions...with no difference in hypoglycemia.

This adds to other limited data suggesting subcutaneous insulin is safe and effective for mild to moderate DKA.

Continue to rely on an IV insulin infusion for ICU or pregnant patients with DKA...or if insulin dosing or subcutaneous absorption is less predictable (severe kidney disease, extreme obesity, etc).

But consider subcutaneous insulin for some mild to moderate DKA cases...such as alert and hemodynamically stable patients with serum bicarb above 10 mEq/L and potassium above 3.3 mEq/L.

Develop a subcutaneous insulin DKA protocol...similar to IV.

Include initial fluid resuscitation with IV crystalloids (lactated Ringer's, etc)...followed by IV dextrose-containing fluids to prevent hypoglycemia as treatment continues.

Start subcutaneous basal (glargine, etc) AND rapid-acting insulin (lispro, etc) STAT. For example, use 0.3 units/kg for each initial dose. Schedule basal Q24H...and rapid-acting Q4H to start.

Monitor blood glucose frequently, such as Q2H, and reduce rapid-acting insulin doses as glucose improves. For instance, transition to sliding scale when blood glucose is below 250 mg/dL.

Also monitor the anion gap and electrolytes Q4H. If possible, use nursing-led protocols to replete electrolytes (potassium, etc).

Confirm colleagues are educated about nuances of the protocol before use. If needed, consider limiting use to certain units.

And help prevent common errors with insulin for DKA.

For example, emphasize that insulin shouldn't be held based on NPO status or a "normal" blood glucose. Reinforce that insulin is needed to resolve DKA...such as an anion gap 12 mEq/L or less.

Use our resource, *Hyperglycemia in the Hospital*, to answer other common DKA questions, including the role of sodium bicarb.

And complete our CE, *Inpatient Management of Diabetes*, for a deeper dive into treatment of hyperglycemic crises.

Key References:

- Diabetes Care. 2022 Jan 1;45(Suppl 1):S244-S253
- JAMA Netw Open. 2022 Apr 1;5(4):e226417
- Cochrane Database Syst Rev. 2016 Jan 21;2016(1):CD011281
- Endocr Pract. 2019 May;25(5):407-412

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