DKA and EDKA: Treatment for Severely Compromised Patients

Refer to a 24 hr facility

DKA: Primary Care Treatment for Less Critical Patients

Consider referral if your clinic's capabilities do not allow for optimum nursing care and hospitalization. Start supportive care if transfer to referral center is not immediately available.

- Start IV fluids to correct dehydration over 6–12 hr (12–24 hr for patients prone to fluid overload) and meet maintenance fluid requirements. Balanced crystalloids (e.g., lactated Ringer's solution, Plasmalyte, or Normosol R) are ideal.
- Address electrolyte disturbances. Add potassium chloride (KCl) and/or potassium phosphate (KPhos) to fluids.* Address hypokalemia as a priority and consider that most DKA patients have a total body potassium deficiency. Potassium levels should ideally be >3.0-3.5 mEq/L before starting insulin. Initially monitor electrolytes every 4-6 hours, especially if high KCl or KPhos infusion rates are required.
- Use a PBGM to monitor BG. Can consider placing a CGM and then initially confirming accuracy as compared with a PBGM. If the CGM appears inaccurate, a PBGM should ideally be used to guide treatment adjustments.
- A regular insulin protocol can be initiated starting at 0.1 U/kg IM then repeated every 1–2 hr with dose adjustments made based on the serial BG monitoring.
- A glargine U-100 protocol can be used as an alternative to regular insulin.[a]
  - Administer 1 U glargine U-100 IV and monitor glucose trends hourly via PBGM or CGM.
  - Administer additional 0.5–1 U glargine U-100 IM every 2–3 hr until BG is 150–250 mg/dL, and then give subcutaneous (SQ) glargine U-100 at 1–2 U every 12 hr.
- For either insulin protocol, add dextrose to fluids (2.5-5%) to maintain BG between 150-250mg/dL.[b]
- Nursing care! Warmth, food, and love.[c]
- Give antibiotics as needed for concurrent bacterial cystitis or other infection.
- Hospitalize until the patient is stable, rehydrated, and eating well.
- Monitor BHB every 12–24 hr until the patient is stable.
- Transition to long-term diabetic management when the patient is stable, rehydrated, and eating well.

(Continued on next page)

FIGURE 12.1

Diabetic Ketoacidosis Protocol for Cats

EDKA: Primary Care Treatment for Less Critical Patients

Consider referral if your clinic's capabilities do not allow for optimum nursing care and hospitalization. Start supportive care if transfer to referral center is not immediately available.

- Discontinue SGLT2 inhibitor.
  - Be aware that the BG-lowering effect of the SGLT2 inhibitor can persist for prolonged periods (multiple days) in cats with comorbid disease, such as hepatic dysfunction or lipidosis.
- Start IV fluids with at least 5% dextrose added at an appropriate rate to correct dehydration. Balanced crystalloids (e.g., lactated Ringer's solution, Plasmalyte, or Normosol R) are ideal.
  - If hypoglycemic (BG <150 mg/dL) at presentation, a 0.25- to 0.5-mL/kg bolus of 50% dextrose diluted 1:4 with 0.9% saline can be given intravenously.
- Add KCl or KPhos as needed to fluids and initially monitor electrolytes at least every 4-6 hours.*
- Use a PBGM or CGM to monitor glucose.
- Initiate insulin therapy within 4 hr once the BG is consistently >150 mg/dL on dextrose supplementation and potassium is >3.0 mEq/L. (See regular insulin or glargine U-100 protocols described above under DKA treatment). If the initial dextrose support is inadequate to increase BG to 150 mg/dL within 4 hr, increase the dextrose concentration to 7.5% or higher.
- Give 0.25–0.3 g of dextrose/kg/hr for every 0.1 U/kg/hr of insulin. Insulin MUST be given continuously IV or repeatedly IM, and it may be necessary to increase dextrose to more than 5% to allow for this.
- Nursing care! Warmth, food, and love.[c]
- Give antibiotics as needed for concurrent bacterial cystitis or other infection.
- Hospitalize until the patient is stable, rehydrated, and eating well.
- Monitor BHB every 8–12 hr until the patient is stable.
- Transition to long-acting insulin for diabetic management; do not restart an SGLT2 inhibitor.

BG, blood glucose; BHB, beta-hydroxybutyrate; CGM, continuous glucose monitor; DKA, diabetic ketoacidosis; EDKA, euglycemic diabetic ketoacidosis; IV, intravenous; KCl, potassium chloride; KPhos, potassium phosphate; PBGM, portable blood glucose monitor

a. Zeugswetter FK, Luckschander-Zeller N, Karlovits S, et al. Glargine versus regular insulin protocol in feline diabetic ketoacidosis. *J Vet Emerg Crit Care* 2021;31:459–68.

b. Gallagher BR, Mahony OM, Rozanski EA, Buob S, Freeman LM. A pilot study comparing a protocol using intermittent administration of glargine and regular insulin to a continuous rate infusion of regular insulin in cats with naturally occurring diabetic ketoacidosis. *J Vet Emerg Crit Care* (San Antonio). 2015;25(2):234-239.

c. Carney HC, Little S, Brownlee-Tomasso D, et al. AAFP and ISFM Feline-Friendly Nursing Care Guidelines. *J Feline Med Surg* 2012;14(5):337–49.

*See the *AAHA Fluid Therapy Guidelines* at aaha.org/fluid-therapy for instructions on supplementing fluids.

FIGURE 12.1, CONTINUED

Diabetic Ketoacidosis Protocol for Cats

The *2026 AAHA Diabetes Management Guidelines for Cats* are available at aaha.org/diabetes-management-cats

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