Suspected DKA

Signs/symptoms: vomiting, abdominal pain, rapid/deep breathing, lethargy, confusion, fruity-scented breath, hyperglycemia

ED Department
- Glucose level 2 & notify provider
- Obtain STAT EPOC on arrival
- VS and neuro checks Q1 hr

Transport Team
- Obtain STAT EPOC on arrival to referring facility
- Review outside records, labs, and management
- Notify MCP for management during transport

EPOC results indicate DKA?

YES
- Manage off pathway

NO
- Yes: Consult to ICU
- No: Does this patient meet ICU criteria?

Admit to Med/Surg
- Use DKA order set
- VS and neuro checks Q2 hr
- Continue insulin infusion and 2 bag fluid resuscitation
- Obtain blood glucose hourly
- Activate emergency response
- See DKA executive summary for recommendations

Admit to PICU
- Management per intensivist
- Patients with severe DKA should receive ICU level care for 12 hours or more before transfer to Med/Surg.
- If patient is improving with ICU care for 12 hours, transfer to Med/Surg is encouraged to avoid delays in the transition to SQ insulin.

To determine appropriate disposition:
- Review initial BMP and VBG results
- Review current neurologic status

Criteria for Transitioning off Insulin Infusion
- Serum HCO3 > 1.5 and serum beta-hydroxybutyrate ≤ 1 mmol/L AND able to tolerate oral intake
- OR
- Serum HCO3 > 17 with normal anion gap AND able to tolerate oral intake

YES
- Does patient have an insulin pump?

NO
- Utilize DKA order set
- Refer to Hospitalist for insulin dosing
- Order food
- Administer short- (based on blood sugar and carb intake) and long-acting insulin sub-q, allow patient to eat. In 30 minutes, after sub-q insulin, turn off insulin infusion and IVF. Start saline IVF, if ordered by Hospitalist team.
- Order blood glucose monitoring and labs (Refer to DKA transition order set)
- Coordinate education with Diabetes Educator as needed
- Consult Endocrinology
- Consult Dietitian and Social Work as needed
- Consult Behavioral Health as needed

YES
- Utilize DKA order set
- Have parent sign waiver of liability specific to insulin pumps
- Have patient or parent replace pump site (use new insertion site, new insulin reservoir filled with new insulin)
- Refer to Hospitalist for insulin dosing
- Order food
- Start insulin pump basal rate and give first insulin bolus through pump (based on blood sugar and carbs intake) and allow patient to eat.
- In 30 minutes after insulin bolus, turn off insulin infusion and IVF. Start saline IVF, if ordered by Hospitalist team.
- Document on Insulin pump flow sheet

Discharge Criteria
- Reason for DKA identified and addressed
- Patient and/or caretaker has demonstrated ability to complete diabetes education, perform self-monitoring of blood glucose, independently calculate insulin doses, administer insulin, identify and treat hypoglycemia and ketonuria
- Appointments with Endocrine and PCP (if needed) scheduled
- All diabetes supplies and prescriptions filled as needed

Cerebral Edema
Clinical findings that are concerning for cerebral edema:
- Severe headache and/or vomiting
- Irritability, lethargy or change in mental status
- Elevated blood pressure and decreased heart rate
- Pupillary reflex changes or cranial nerve palsy
- Decorticate or decerebrate posturing
- Activate emergency response

Criteria for ICU Placement
Based on initial BMP and VBG lab value and current neurologic status:
- Severe DKA (pH < 7.1 or bicarbonate < 5)
- Mild or Moderate DKA (pH < 7.3 or bicarbonate < 15) and any of the following:
  - Significant headache
  - Mental status abnormalities or GCS < 14
  - Hemodynamic instability
  - Age < 24 months

Consider patient < 5 years of age and/or with corrected serum sodium > 160

Exclusion Criteria
- DKA is defined as:
  - Hyperglycemia > 200 mg/dL
  - pH < 7.3 or HCO3 < 15 mEq/L
  - Ketosis in blood or urine

Inclusion Criteria
- Blood glucose > 1,000 mg/dL
- Corrected serum sodium < 160-hemodynamic instability
- Concern for cerebral edema

Important Information
- Consider patient < 5 years of age and/or with corrected serum sodium > 160-hemodynamic instability
- Concern for cerebral edema
- DKA is defined as:
  - Hyperglycemia > 200 mg/dL
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  - Ketosis in blood or urine
- Exclusion Criteria
  - Blood glucose > 1,000 mg/dL
  - Corrected serum sodium < 160
- Inclusion Criteria
  - Hyperglycemia > 200 mg/dL
  - pH < 7.3 or HCO3 < 15 mEq/L
  - Ketosis in blood or urine

Regular Information
- Blood glucose > 200 mg/dL
- pH < 7.3 or HCO3 < 15 mEq/L
- Ketosis in blood or urine
- Exclusion Criteria
  - Blood glucose > 1,000 mg/dL
  - Corrected serum sodium < 160
- Inclusion Criteria
  - Hyperglycemia > 200 mg/dL
  - pH < 7.3 or HCO3 < 15 mEq/L
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Disclaimer: Pathways are intended as a guide for practitioners and do not indicate an exclusive course of treatment nor serve as a standard of medical care. These pathways should be adapted by medical providers, when indicated, based on their professional judgement and taking into account individual patient and family circumstances.

www.ChildrensOmaha.org/Pathways-Protocols

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