
Clinical Report

Patient Information

- **Name:** Chloe Johnson
- **Date of Birth:** 09/01/2010
- **Age:** 14
- **Gender:** Female
- **Contact Information:** (555) 456-7890 (Contact via parent, Mrs. Laura Johnson)
- **Address:** 456 Maple Drive, Anytown, USA

Referring Physician

- Dr. Michael Lee, MD
- Pediatrician
- Anytown Pediatrics

Medical Institution

- Anytown Children's Hospital - Endocrinology Department
- **Report Date:** 07/18/2025

Clinical History and Background

Chloe Johnson is a 14-year-old female brought to the emergency department by her mother with a one-week history of rapidly progressing symptoms including excessive thirst, frequent urination, and significant weight loss. Chloe is an active 9th grader and avid soccer player. Her mother reports that Chloe seemed "off" and unusually tired for the past few weeks, but the symptoms escalated dramatically in the last several days. She has no significant past medical history. Family history is notable for a maternal aunt with Celiac disease and a paternal grandfather with Type 2 diabetes.

The presentation to the emergency department was precipitated by an episode of nausea, vomiting, and increasing lethargy today, raising concerns for diabetic ketoacidosis (DKA).

Current Symptoms & Patient-Reported Outcomes (PROs) (Reported by Patient and Parent)

- **Polydipsia (Excessive Thirst):**
    - **Patient's/Parent's Description:** "She is constantly drinking water. She carries a giant water bottle everywhere and refills it multiple times at school. She even wakes up at night to drink."
    - **Severity:** Severe. Parent estimates she is drinking over a gallon of water per day.

    - **Duration:** Progressively worsening over the past two weeks.
    - **Clinical Note:** A classic symptom of hyperglycemia, as the body tries to flush out excess glucose through the urine, leading to dehydration and intense thirst.
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- **Polyuria (Frequent Urination):**
    - **Patient's/Parent's Description:** "She's going to the bathroom all the time, at least once an hour. She started having accidents at night, which hasn't happened since she was a toddler."
    - **Severity:** Severe and disruptive. The nocturia (nighttime urination) is particularly concerning.
    - **Duration:** Worsening over the past two weeks.
    - **Clinical Note:** This is the direct result of osmotic diuresis caused by high blood glucose levels spilling into the urine.
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- **Unexplained Weight Loss:**
    - **Patient's/Parent's Description:** "She eats like a horse, but she's lost so much weight. Her soccer uniform is hanging off her."
    - **Severity:** Significant. Documented weight loss of 15 pounds over the last month.
    - **Duration:** Over the past 4-6 weeks.
    - **Clinical Note:** In the absence of insulin, the body cannot use glucose for energy and begins breaking down fat and muscle stores, leading to rapid weight loss despite a normal or increased appetite (polyphagia).
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- **Fatigue and Lethargy:**
    - **Patient's/Parent's Description:** "She has no energy for soccer practice and has been falling asleep after school, which is not like her at all. Today she is very drowsy."
    - **Severity:** Progressed from moderate to severe.
    - **Duration:** Insidious onset over a month, with acute worsening in the last 24 hours.
    - **Clinical Note:** Results from the body's inability to convert glucose into energy and can be exacerbated by dehydration and the metabolic disturbances of impending DKA.
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Clinical Findings (on admission to ED)

- **Vital Signs:**
    - **Blood Pressure:** 95/60 mmHg (mildly hypotensive)
    - **Heart Rate:** 125 bpm (tachycardic)
    - **Respiratory Rate:** 28 breaths/min (deep, sighing respirations - Kussmaul breathing)
    - **Temperature:** 99.0°F (37.2°C)
    - **Oxygen Saturation:** 98% on room air
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- **Physical Examination:**
    - **General:** Patient is lethargic but arousable. Mucous membranes are dry. Skin turgor is poor.
    - **Respiratory:** Deep, rapid (Kussmaul) respirations are noted, with a fruity odor to her breath (acetone).
    - **Abdomen:** Mild, diffuse abdominal tenderness without guarding or rebound.
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- **Laboratory Results (Point-of-Care and Stat Labs):**
    - **Blood Glucose (fingerstick):** 580 mg/dL (Normal 70-140 mg/dL) - *Markedly elevated*.
    - **Arterial Blood Gas (ABG):** pH 7.15 (Normal 7.35-7.45), pCO2 25 mmHg, Bicarbonate (HCO3) 10 mEq/L - *Consistent with a metabolic acidosis with respiratory compensation*.
    - **Urinalysis:** Large ketones and large glucose.
    - **Serum Chemistry:** Sodium 128 mEq/L, Potassium 5.5 mEq/L (falsely elevated due to acidosis), BUN 28 mg/dL, Creatinine 1.3 mg/dL - *Indicating dehydration and electrolyte shifts*.
    - **Autoantibody Panel:**
        - **Glutamic Acid Decarboxylase Antibodies (GAD-65):** Positive.
        - **Islet Antigen 2 Antibodies (IA-2A):** Positive.
        - **Insulin Autoantibodies (IAA):** Positive.
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    - **C-Peptide:** <0.1 ng/mL (very low, indicating negligible endogenous insulin production).
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Diagnosis

Chloe Johnson presents with a clear case of new-onset **Type 1 Diabetes Mellitus (T1D)**, in a state of moderate to severe Diabetic Ketoacidosis (DKA). The diagnosis is confirmed by the classic tetrad of symptoms (polydipsia, polyuria, polyphagia, weight loss), severe hyperglycemia, and the presence of ketosis and acidosis. The positive autoantibodies (GAD-65, IA-2A, IAA) and low C-peptide level confirm the autoimmune etiology and distinguish it from Type 2 diabetes.

Treatment Strategy

The immediate priority is the management of DKA, followed by comprehensive education and initiation of lifelong insulin therapy.

1. **Immediate DKA Management (in Pediatric ICU):**
    - **Fluid Resuscitation:** Careful intravenous fluid administration (isotonic saline) to correct dehydration and improve perfusion.

    - **Insulin Therapy:** A continuous intravenous insulin infusion will be started to gradually lower blood glucose, which will in turn stop ketone production and resolve the acidosis.
    - **Electrolyte Correction:** Close monitoring and replacement of electrolytes, particularly potassium, which will shift back into the cells as acidosis is corrected, leading to a rapid drop in serum levels.
2.
3. **Transition to Subcutaneous Insulin:**
    - Once the DKA is resolved, Chloe will be transitioned to a subcutaneous insulin regimen. A basal-bolus regimen using a long-acting insulin analog (basal) and a rapid-acting insulin analog for meals (bolus) is the standard of care.
4.
5. **Comprehensive Diabetes Education ("Survival Skills"):**
    - This is the cornerstone of long-term management. Chloe and her family will work intensively with a Certified Diabetes Educator (CDE) and dietitian.
    - **Topics include:** Blood glucose monitoring, insulin administration (injections or insulin pump), carbohydrate counting, recognition and treatment of hypoglycemia and hyperglycemia, and sick day management.
6.

Summary and Plan

Chloe Johnson is a 14-year-old female with a new diagnosis of Type 1 Diabetes, presenting in DKA. She is currently admitted to the PICU for aggressive but careful management of her metabolic derangement. Once medically stable, the focus will shift entirely to providing her and her family with the tools and education necessary to manage this lifelong condition. We will connect the family with pediatric endocrinology, a diabetes educator, a dietitian, and social work to provide a multidisciplinary support system. The goal is to empower Chloe to live a full and healthy life with T1D.

Follow-up

Chloe will be discharged from the hospital only after her family can demonstrate competence and confidence in the basic "survival skills" of diabetes management. She will have a follow-up appointment in the pediatric endocrinology clinic within one week of discharge. Frequent contact (phone and in-person visits) will be maintained over the first few months to adjust insulin doses and provide ongoing support and education. Regular clinic visits will be required every 3 months.