



PG Residency Endocrinology

Smart Notes. Better Scores.



Emergencies of Diabetes Mellitus: DKA Introduction

Epidemiology and Risk Stratification by Diabetes Type

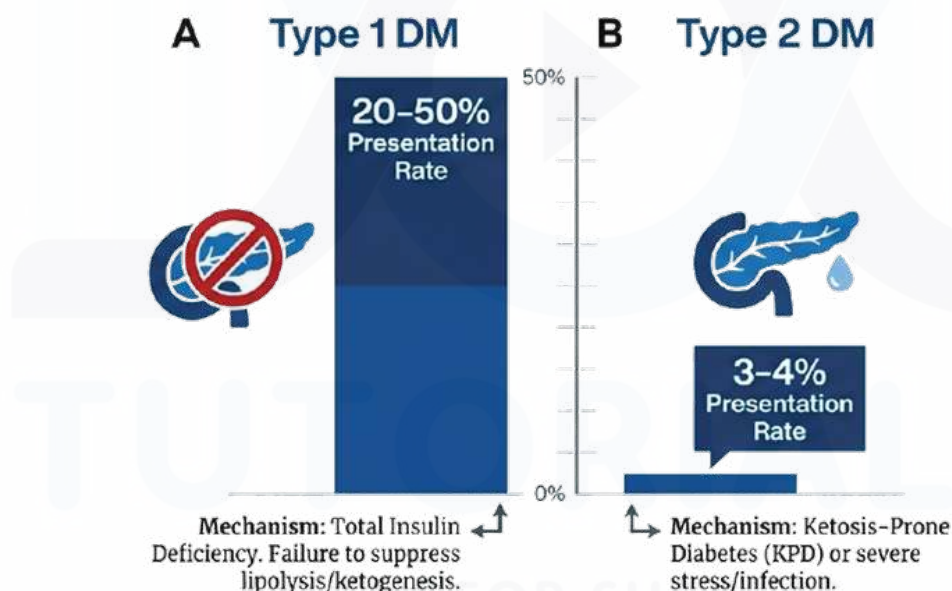
Definition

- Diabetic Ketoacidosis (DKA) is the prototype hyperglycemic emergency characterized by severe dehydration, metabolic acidosis, and ketosis.

Clinical Suspicion

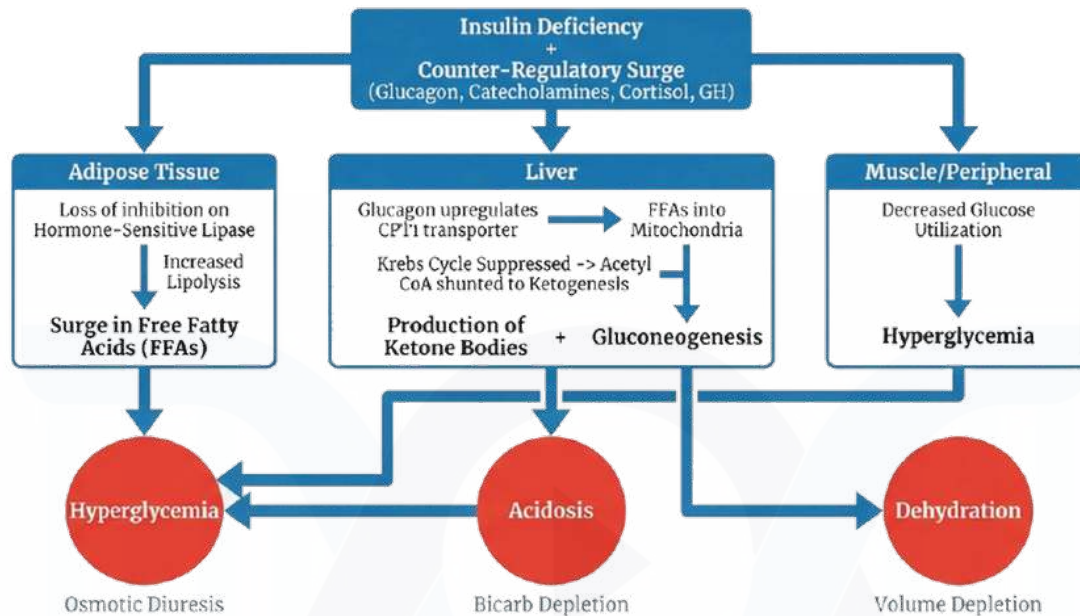
Consider OKA in any diabetic patient presenting with:

- Abdominal pain
- Distressed breathing (rapid, shallow, acidotic)
- Altered sensorium (lethargy to coma)



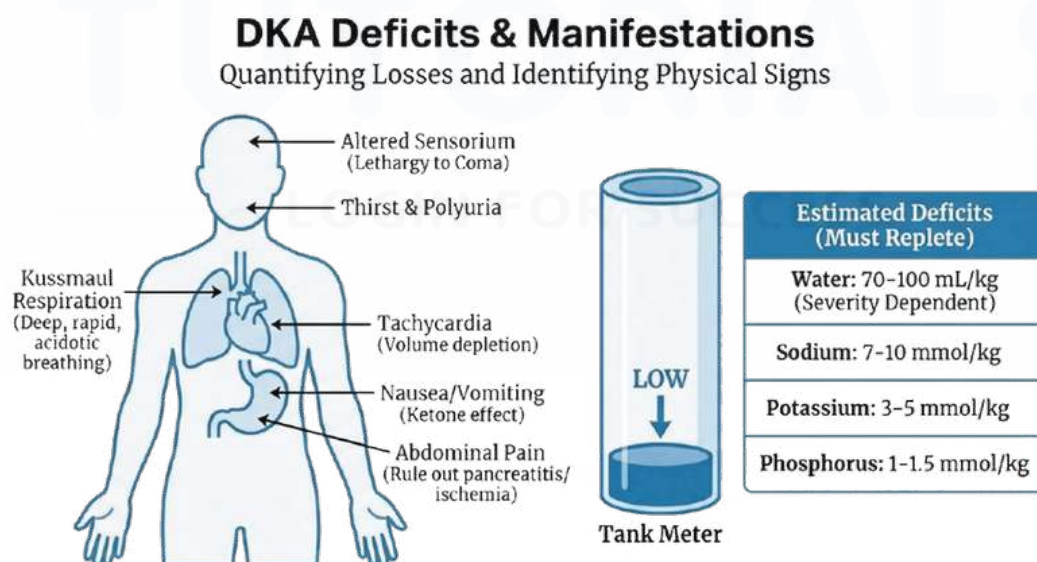
DKA Pathophysiology: The Metabolic Cascade

From Insulin Deficiency to the Clinical Triad



DKA Deficits & Manifestations

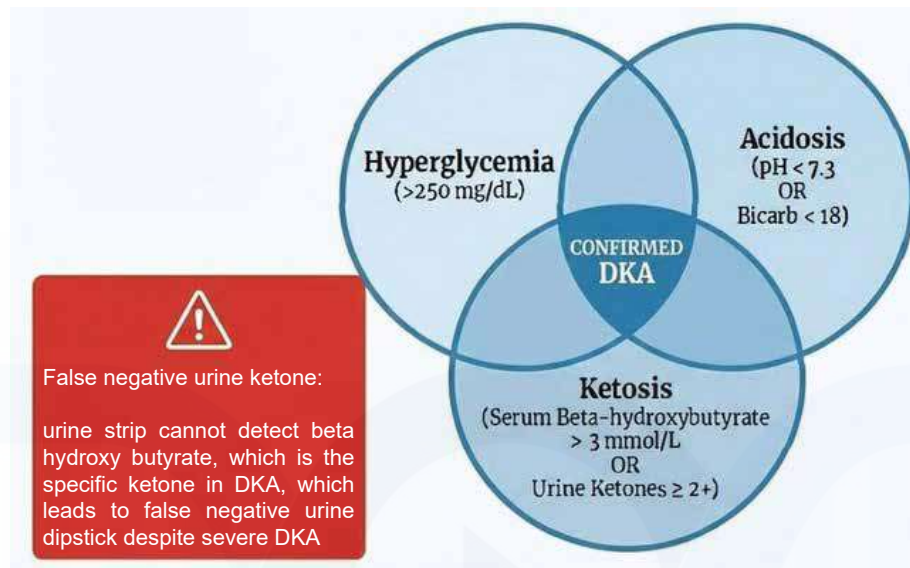
Quantifying Losses and Identifying Physical Signs



Note: A 100 mL/kg deficit equals approx. 6-7L in an average adult.

Diagnosis & Differential

The Diagnostic Triad and Clinical Pitfalls



Differential for Altered Sensorium:

1. Metabolic: Acidosis, Hyperosmolarity.
2. Cerebral Edema: Suspect if deterioration occurs during IV fluids. Treat with Mannitol.
3. Structural/Infectious: Stroke or Meningoencephalitis.

Classification & Pseudo-Abnormalities

Stratifying Severity and Avoiding Diagnostic Traps

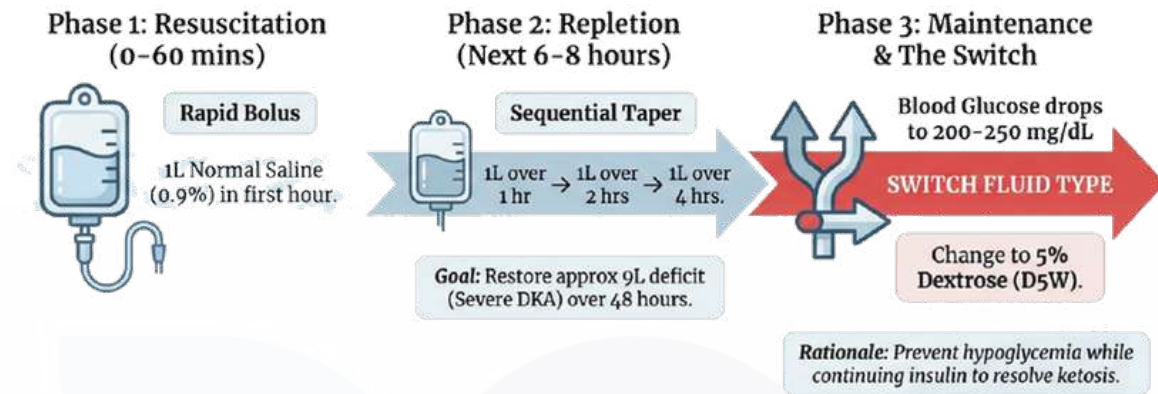
Feature	Mild DKA	Moderate DKA	Severe DKA
pH	7.25 - 7.30	7.00 - 7.24	< 7.00
Bicarbonate	16-18 mEq/L	10 - 16 mEq/L	< 10 mEq/L
Sensorium	Alert	Alert/Drowsy	Stupor/Coma

Myth vs. Fact: Lab Artifacts in DKA

- Pseudo-Hyponatremia
 - Mechanism: Dilutional effect of hyperglycemia.
 - Action: Use Corrected Na Formula: Measured Na + 1.6 mEq per 100 mg/dL glucose > 100.
- Pseudo-Infection
 - Observation: Leukocytosis (WBC up to 25k) is common due to stress.
 - Action: Interpret carefully; >25k suggests true infection.
- Pseudo-Pancreatitis
 - Observation: Amylase elevates non-specifically.
 - Action: Check Lipase for specific diagnosis.
- Pseudo-MI
 - Observation: Hyperkalemia can mimic ECG infarction signs.

Management: IV Fluids (The Cornerstone)

Resuscitation, Repletion, and The "Dextrose Switch"

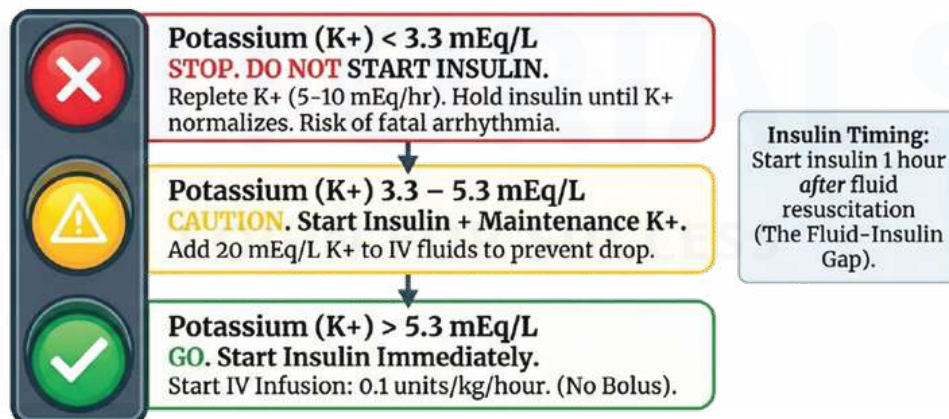


Management: Insulin & Potassium

The Non-Negotiable Safety Protocol

Management: Insulin & Potassium

The Non-Negotiable Safety Protocol



Monitoring & Resolution

Closing the Loop and The Sub-Q Transition

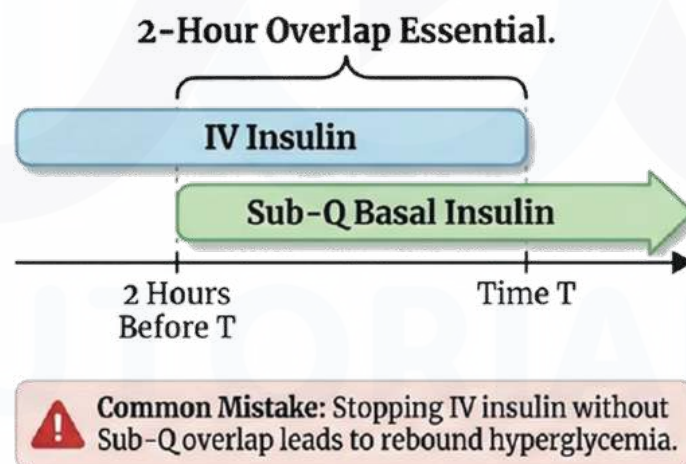
Monitoring & Resolution Criteria Monitoring Loop

- Check Na⁺, K⁺, and Blood Gas every 4 hours.
- Target: Glucose resolves in 4-6 hrs; Ketosis takes 6-24 hrs.

Resolution Criteria (Must meet all)

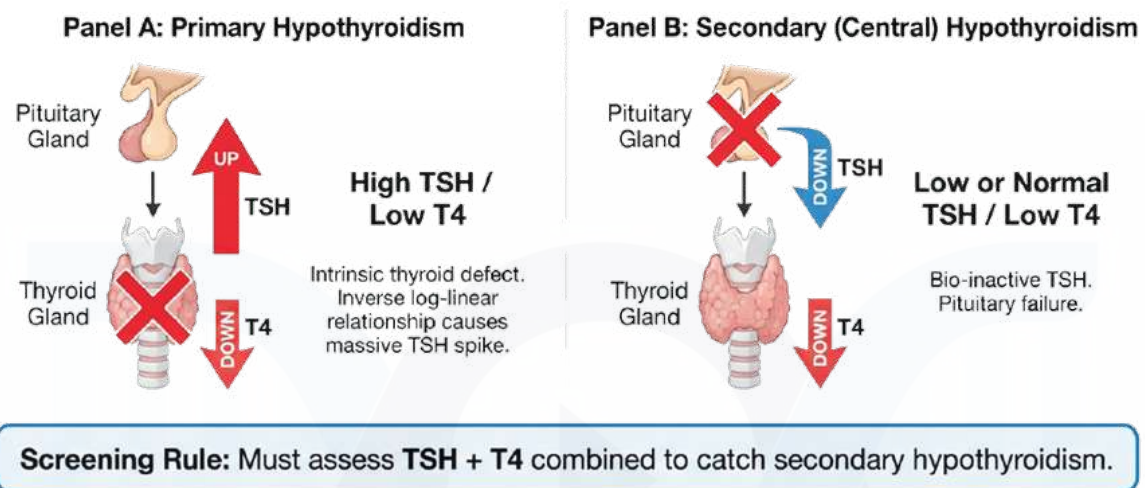
1. pH > 7.3
2. Bicarbonate > 18 mEq/L
3. Anion Gap Normalized (8-12)

The Transition (Visual Diagram)



Hypothyroidism: Screening & Types

Primary vs. Secondary Etiologies

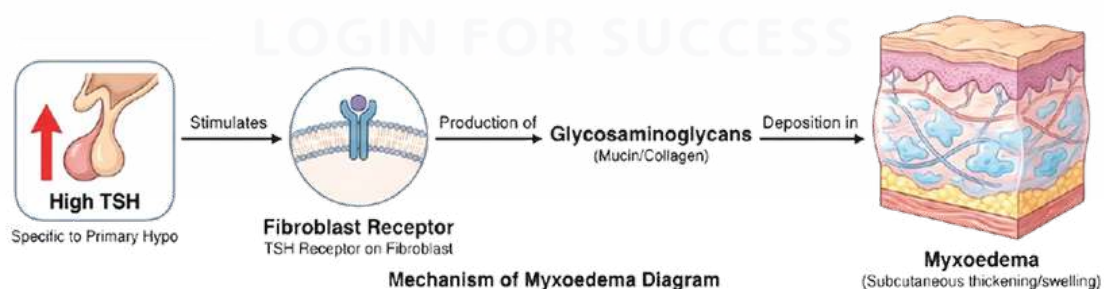


Differentiation & Myxoedema

Why Clinical Features Differ by Type

The Differentiator:

Key Biochemical Differentiator: TSH Level



Clinical Relevance: Gross myxoedema argues against Secondary Hypothyroidism (due to lack of high TSH stimulus).

Treatment: Thyroxine (T4) Protocol

Pharmacology and Dosing Logic

The Conversion Logic (Infographic)



Physiological Imitation: 80% of body T3 is converted intracellularly from T4. T4 allows stable, once-daily dosing.

Dosing Guidelines

Standard Dosing

- Full Replacement: 1.6 mcg/kg/day (approx. 75-100 mcg/adult).
- Mild Cases: Start 25-50 mcg/day.
- Goal: Mimic physiological production.

Why not T3?

- Short half-life requiring multiple daily doses.
- Non-physiological peaks and troughs.



Medicine

Clinical Case

Structured Clinical Case Videos



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Special Populations

Tailoring Treatment to Reduce Risk



The Elderly (>65)

Risk: Osteoporosis (Fractures) & Atrial Fibrillation.
Strategy: Start Low (25-50 mcg). Titrate Slow. Relax TSH targets.



Cardiac Disease

Risk: Precipitating Heart Failure or MI (increased contractility).
Strategy: Start Conservative (25-50 mcg). Monitor for angina.



Pregnancy

Physiology: Increased demand (hCG stimulation + fetal dependence).
Strategy: Increase Dose 30-50% immediately.
 New diagnosis: Start 1.8-2.0

Monitoring Treatment & Timeline

Expectations for Recovery



Pregnancy Exception: Monitor TSH every 4-6 weeks. Check 3-4 weeks after any dose change.

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