STANDARD TREATMENT WORKFLOW (STW)

Diabetic Ketoacidosis

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Standard Treatment Workflow (STW)

DIABETIC KETOACIDOSIS

ICD-10-E11.10



May be the initial presentation in TIDM

Pain abdomen

Recurrent vomiting

Rapid/labored breathing

Altered sensorium

ASSESS

- Sensorium (GCS), pulse rate, blood pressure, respiratory rate, temperature
- Signs of dehydration (dry tongue, sunken eyes, skin turgor, urine output)

ASSESS SEVERITY OF DKA				
	Mild	Moderate	Severe	
рН	7.25-7.3	7.0-7.25	<7.0	
HCO ₃	15-18	10-15	<10	
Level of Sensorium	Alert	Mild Drowsiness	Stupor/ Coma	
Sever case: ICU Admission				

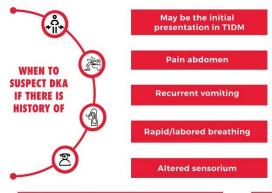




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LOOK & ADDRESS FOR PRECIPITATING FACTORS

- · Skipping/missing insulin doses
- · Fever/cough/loose stools/burning micturition

INVESTIGATIONS

- Spot capillary blood glucose (venous blood preferable in case of shock)
- · Serum ketone/urine ketone by dipstick) · VBG (for pH, bicarbonate, anion gap)
- · Na⁺/K⁺/BUN/Creatinine/ECG

MANAGEMENT

MONITORING

- · Strict input/ output charting: every 1 hour
 - Report if urine output is <30ml/hour for 2 consecutive hours
 - One hour after starting the treatment: Till resolution of DKA
 - BP and vital signs: every 1 hour
 - · Blood glucose every 1 hour
 - Venous pH, Na, K, HCO₃: 2-4 hourly
 - Blood ketones (if available)/Urine for ketones: 12 hourly
- · After resolution of DKA: Blood glucose monitoring every 4 hours

TREATMENT

- · Replace fluids 11 of 0.9% saline over first hour followed by 250-500 ml/hour (10-20ml/kg/hour initially for children)
- · Administer regular insulin 0.1 IU/kg IV then 0.1 IU/ka/hour IV infusion
- · Double infusion rate if less than 10% fall in blood glucose after 1 hour
- · When blood glucose < 250 mg/dl, add 5% dextrose @ 50 ml/hour
- · Supplement potassium before insulin if serum K⁺ < 3.3 mEq/L (or ECG changes)
- · Replace potassium @ 10-20 mEq/hour with insulin infusion if serum K+ < 5.5 mEq/L
- · If pH < 7.0, add sodium bicarbonate; 50 mmol in 200 ml sterile water over 2 hour
- · Bicarbonate should be given only: if pH is less than 6.9 or if pH is less than 7.1 along with hypotension or if hyperkalemia is present

WHEN TO STOP INSULIN INFUSION?

- · Patient accepting orally, blood glucose consistently < 250 mg/dl, normalization of anion gap and correction
- · Administer SC dose of long/intermediate-acting & short acting insulin at least 30 mins before stopping

COMMON ERRORS/PITFALLS IN DKA DIAGNOSIS AND MANAGEMENT

- · Initiating Insulin therapy before I/V fluid therapy
- · Failure to review fluid replacement therapy particularly in elderly patients
- · Failure to identify underlying cause
- · Search for another cause of obtundation: If the osmolality is <than 320 mOsm/kg H₂O
- · Potassium: may be normal despite depletion of body stores due to metabolic acidosis
- · Elevated total leucocyte count does not suggest presence of infection until more than >15 X 109/I
- · Monitor for cerebral edema especially in childern
- · Body temperature cannot be used as a guide to presence of infection
- · Hyperamylasemia: Cannot be used as a marker for diagnosis of pancreatitis
- · Hypertriglycredemia: can cause pseudohyponatremia and when marked precipitates pancreatitis
- · Ketosis may worsen paradoxically with successful treatment initially
- · Stopping I/V insulin before S/C insulin given

ABBREVIATIONS

BUN: Blood urea nitrogen **DKA:** Diabetic ketoacidosis ECG: Electrocardiogram

GCS: Glasgow coma scale I/V: Intravenous
ICU: Intensive care unit

SC: Subcutaneous VBG: Venous blood gas

★ KEEP A LOW THRESHOLD FOR TIMELY DIAGNOSIS AND MANAGEMENT OF DKA

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