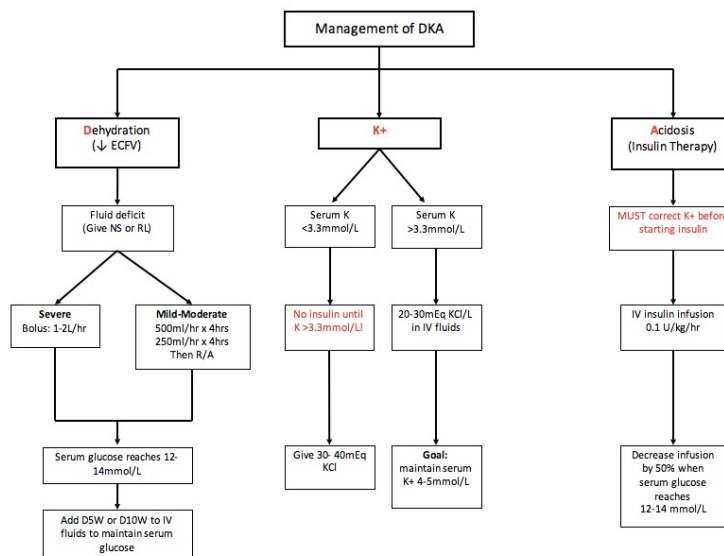


DKA

- Confirm the patient ID
- Brief Hx and PE if the patient is stable if unstable start with ABC
 - Check vital sign and LOC
 - Diuresis (polyuria), Dizziness, Dehydration, Delirium, Drinking (polydipsia)
 - Kussmaul respirations (rapid, deep, fast respirations that attempt to correct for metabolic acidosis)
 - Abdominal pain + N/V, "Fruity" (acetone) breath odor
 - Check Vital sign and Level of conscious
 - Order laboratory tests: blood glucose, arterial blood gas, CBC, electrolytes, BUN, creatinine, and urinary analysis. ECG, CXR, and cultures.
 - **Initiate IV fluids.**
- Diagnosis
 - **Diabetic:** blood glucose >14mmol/L (Hyperglycemia)
 - **Ketotic:** beta-hydroxybutyrate >3mmol/L or ketonuria (3+)
 - **Acidotic:** pH <7.3 and HCO₃⁻ <15mmol/L with increase AG
- Management
 - **Dehydration:** IV Fluid (NS until the blood glucose reaches 200 mg/dL then add 5% glucose)
 - Potassium (**K**): monitoring + other electrolytes (Pseudohyponatremia)
 - **Acidosis and hyperglycemia** : insulin therapy (don't give in hypokalemia)
 - **Close monitoring (ICU admission)**
 - Search for the **precipitating** factor and treat
 - Inadequate administration of insulin (skip dose)
 - Any type of stress or illness
 - **Avoid complications** of therapy
 - Cerebral edema (Fluid over load)
 - Hypokalemia (insulin therapy)
- Further information about DKA
 - Consequences of DKA include hyperglycemia, ketonemia, metabolic acidosis, and volume depletion.
- Differential Diagnosis of DKA
 - **Alcoholic ketoacidosis**
 - Hyperosmolar hyperglycemic nonketotic syndrome (**HHNS**)
 - **Hypoglycemia** (altered mental status, abdominal pain, and acidosis are possible)
 - **Sepsis**
 - **Intoxication** (e.g., methanol, ethanol, salicylates, isopropyl alcohol, paraldehyde, ethylene glycol)



Vaso-occlusive Crisis & Acute chest syndrome in SCD

- Confirm the patient ID
- Complete Hx and PE if the patient is stable if unstable start with ABC
 - **PAIN** (SOCRATES) most commonly involves the back, legs, knees, arms, chest and abdomen. The pain generally affects two or more sites. Bone pain tends to be bilateral and symmetric
 - **Precipitating** factor (Infections, Low oxygen tension, Concomitant medical conditions (e.g., sarcoidosis, diabetes mellitus, herpes), Dehydration, Acidosis, Extreme physical exercise, Physical or psychological stress, Alcohol, Pregnancy and Cold weather)
 - Order lab test : CBC, reticulocyte count and urinalysis.
 - Hospital admission in moderate to severe cases
- Diagnosis
 - Clinically
 - If fever is present, a chest radiograph should be obtained, and urine, sputum and blood should be cultured for a possible source of infection.
 - If possible, **identify and treat underlying precipitating factors.**
- Management
 - **Hydration:** oral or IV depends on the severity
 - opioid **analgesics:** such as Morphine on a regular basis in a full therapeutic dosage or by patient-controlled analgesia. Avoid “as-needed” dosing.
 - **Blood transfusions:** as needed and in Acute chest syndrome
 - **Early simple transfusion** should be considered early in patients with **hypoxia**; however, **exchange transfusion** is necessary in patients with severe clinical features or evidence of progression despite initial simple transfusion
 - Rest
 - **HYDROXYUREA**
 - **Oxygen:** should be administered only if hypoxemia is present
 - In Acute chest syndrome: give **Antibiotics**, with cover for atypical organisms, even if blood cultures and sputum cultures are negative
 - Prevent crisis by: vaccination, patient education about Precipitating factor
- Further information
 - When a vaso-occlusive crisis lasts longer than seven days, it is important to search for other causes of bone pain, such as osteomyelitis, avascular necrosis and compression deformities.
 - An acute abdominal pain crisis often resembles an intra-abdominal process such as cholecystitis or appendicitis
 - Patients should be transfused to their baseline hemoglobin level. A higher hematocrit may make the blood more viscous and further increase sickling.
- Differential diagnosis of SC crisis

PAIN TYPE	DIFFERENTIAL DIAGNOSIS
Bone (Limb) Pain	Osteomyelitis, avascular necrosis, cellulitis, septic arthritis, regional pain syndrome, neuropathic pain (paresthesia, hyperalgesia), opioid withdrawal
Abdominal Pain	Cholecystitis, cholelithiasis, appendicitis, mesenteric ischemia, bowel obstruction, hernia, splenic infarction/sequestration crisis, hepatic sequestration, renal infarct
Groin Pain	Priapism, testicular torsion, renal colic, UTI/GYN, sexually transmitted disease
Back Pain	Disc herniation, aortic dissection, acute coronary syndrome, nephrolithiasis
Headache Pain	Migraine, stroke, meningitis, retinopathy
Chest Pain	Acute chest syndrome (ACS), myocardial infarction, pneumonia, pleural effusion, pulmonary embolism, pulmonary hypertension

Asthma exacerbation

- [Confirm the patient ID](#)
- [Complete Hx and PE if the patient is stable if unstable start with ABC](#)
 - Start with vital sign
 - **Tachypnea, diaphoresis, wheezing, speaking in incomplete sentences, and use of accessory muscles of respiration.**
 - Paradoxical movement of the abdomen and diaphragm on inspiration is sign of impending respiratory failure.
 - Cough and sometimes Fever (infection)
 - Hospital admission
- [Diagnosis](#)
 - **Peak expiratory flow rate** (PEFR)
 - PFTs (after stabilizing the patient)
 - Routine lab test
 - Chest X-ray, **ABG**
- [Management](#)
 - **ASTHMA**
 - **A** = Albuterol: Via nebulizer
 - **S** = Steroids: oral or IV
 - **T** = Theophylline (not that effective)
 - **H** = Hydration
 - **M** = Mask O₂ (keep oxygen saturation >90%).
 - **A** = Anticholinergic
 - **Antibiotics**, only if suspicion of bacterial pneumonia (as most triggers are viral).
 - identify and treat underlying precipitating factors (triggers)
 - Review the medication and make sure if the adherence
- [Differential diagnosis](#)
 - COPD exacerbations
 - Pneumonia
- [Further information](#)
 - **Magnesium** helps relieve bronchospasm. Magnesium is used only in an acute, severe asthma exacerbation not responsive to several rounds of albuterol while waiting for steroids to take effect.
 - Classifying severity: **33, 92 CHEST**
 - Life-threatening:
 - PEFR <**33%** , O₂ saturation <**92%** , **C**yanosis , **H**ypotension , **E**xhaustion , **S**ilent chest , **T**achycardia
 - Severe:
 - PEFR <50% , RR >25 PR >110
 - Moderate
 - PEFR <75%
 - Mild
 - PEFR >75%

GI bleeding

- Confirm the patient ID
- Complete Hx and PE if the patient is stable if unstable start with ABC
 - Vital sign and Level of conscious
 - Hematemesis, Melena, hematochezia ans S/S of anemia
 - Constitutional Symptoms and medication Hx
 - Hx of Liver disease
 - Risk stratification using any score
- Diagnosis
 - Lab test
 - Blood: CBC, Coagulation Profile, LFT, H.pylory test.
 - BUN/Cr ratio: high in upper GI bleeding.
 - Stool: occult blood
 - Endoscopy: site, source, therapy
- Management
 - Monitoring: Vital signs
 - Hydration
 - Blood transfusions as needed (don't forget the target Hb in cirrhosis is 7-8)
 - Treat the cause
 - **PUD:** Acid suppression, H. pylori eradication, Endoscopic (Dx & Rx) simple over sewing/
 - **Variceal bleeding:** resuscitation (avoiding over transfusion and keeping hemoglobin ~7-8), antibiotics and infusion of a splanchnic vasoconstrictor (Octreotide).
- Differential diagnosis
 - PUD
 - Esophageal varices
 - Mallory Weiss tear
 - Malignancy (usually not ER)
 - Bleeding disorders
- Further information
 - **Risky stratification:**
 - Risk assessment (AIMS65 score): the higher the score the higher risk of further bleeding and death.
 - You can used your Hx and PE in Risk assessment
 - More than 0 require admission

Clinical parameters		Score	
Modified GBS			
Heart rate (beats/min)	≥100	1	
Systolic blood pressure (mmHg)	100-109	1	
	90-99	2	
	<90	3	
Blood urea nitrogen (mg/dL)	19-22.3	2	
	22.4-27.9	3	
	28.0-69.9	4	
	≥70.0	6	
Hemoglobin (g/dL)	Men	Women	
	12.0-12.9	10-12	1
	10.0-11.9		3
	<10.0	<10	6
Full GBS findings ^[23]			
Comorbidities	Liver disease	2	
	Heart failure	2	
Presentation	Syncope	2	
	Melena	1	

Risk factor	Score
Albumin <3.0 mg/dL	1
INR >1.5	1
Altered mental status	1
Systolic blood pressure <90 (mmHg)	1
Age >65 yr	1
Maximum score	5

Status Epilepticus

- Confirm the patient ID
- Complete Hx and PE if the patient is stable if unstable start with ABC
 - **If patient currently seizing:**
 - For how long? **SE** (more than 5min), know seizure? on anticonvulsant? DM?
 - **ABCDE:** Place patient in **decubitus** position until airway can be secured
 - Maintain Airway- patient at risk for aspiration
 - Breathing-place O₂, be ready for intubation
 - Circulation-obtain 2 IV access
 - Dextrose: check glucose levels
 - Electrolytes: check electrolytes (Na, Ca, Mg), and anticonvulsant levels
 - level of consciousness and remove all the sharp object
 - Finger-prick **glucose** test: If the patient is hypoglycemic, give glucose
 - **Management**
 - Keep calm and make sure to protect the patient from injury and aspiration, administer oxygen by face mask or nasal cannula
 - Watch and wait for 2 minutes
 - Start **Benzodiazepine:** 5 mg Diazepam slowly (over 3-5 minutes) If seizure does not stop another 5 mg, Rectal diazepam if no IV access.
 - Elicit any further history not obtained initially and observed seizure type
 - **PHENYTOIN:** If seizure does not stop with full dose of benzodiazepines give phenytoin (15 to 20 mg/kg as a slow IV The rate of administration should not exceed 50 mg/min because phenytoin can cause cardiac arrhythmias. Monitoring: ECG + BP during infusion
 - **ICU:** if seizure persists > 30 minutes for probable intubation
 - If not stop **Phenobarbital** and If you haven't called Neurology, please call !!!
 - Finally, the ultimate therapy for unresolving seizure is to use a **neuromuscular blocking** agent to allow you to **intubate** the patient and then give **general anesthesia** such as midazolam or propofol. The patient must be placed on a **ventilator** before the administration of propofol, which can stop breathing.
 - **If seizures stop**
 - Stabilizing the patient & Search for the causes
- Diagnostic workup
 - All the patient
 - FS **glucose**
 - Monitor vital signs.
 - Head **CT** (appropriate for most cases)
 - Labs: blood glucose, CBC, BMP, Ca, Mg
 - **cEEG** monitoring
 - Consider based on clinical presentation
 - **LP:** when suspecting meningitis
 - **Toxicology** panel
- Differential diagnosis **VITAMINS**
 - Vascular \ Infection \ Trauma \ Autoimmune \ Metabolic \ Ingestion / withdrawal \ Neoplasm \ Psychological.
- **COMPLICATION**
 - Respiratory failure
 - Arrhythmia
 - Hypoxia
 - Hyperthermia

• Approach to CVD

◦ Diagnosis

- Routine lab test
 - CBC, ESR,CRP, electrocyte, RFT, LFT, TFT, Lipid Profile, Ha1c
- Specific test
 - **Cardiac enzymes**
 - **BNP**
 - **stress test (for ischemia)**
 - non pharmacological (running with ECG)
 - Pharmacological (for those who can't run)
 - **CT angiogram,CT, MRI**
 - **Eye fundoscopy**
 - **Doppler if DVT / Carotid US**
- Imaging
 - CXR, ECG, Echo
- Tissue diagnosis(BIOPSY)
 - indication for cardiac biopsy
 - Suspected fibrosis
 - Regularly in cardiac transplant

• Approach to Respiratory

◦ Diagnosis

- Routine lab test: CBC, ESR,CPR, electrocyte, RFT, LFT, TFT, Lipid Profile, Ha1c,
- Specific test:
 - **Spirometry and other PFT**
 - **ABG**
 - **sputum and blood culture.**
 - **Right heart catheter = swan gas catheter**
 - **THORACOCENTESIS**
 - Peak expiratory flow rate (**PEFR**) measurement
- Imaging :CXR, CT, Nuclear medicine techniques (v/q)
- TISSUE BIOPSY: for malignancy, infection...

• Approach to GI

◦ Diagnosis

- Routine lab test: CBC, ESR,CPR, electrocyte, RFT, LFT, TFT, Lipid Profile, Ha1c.
- **Specific test:**
 - **pancreatic enzymes**
 - **Urine analysis and culture**
 - **Blood serology**
 - **stool analysis**
 - **24h PH monitor**
 - **ENDOSCOPY, COLONOSCOPY, MRCP, HIDA, ERCP**
- Imaging:
 - ECG, US, CXR, AXR, CT CAP
- Tissue: biopsy in cirrhosis, GIRD and PUD.