Hs and Ts Table

ACLS certification association

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Condition (Potential Causes)	Assessments/ Findings	Treatments/ Interventions
Hypovolemia Obvious/occult bleeding, sepsis, anaphylaxis, supine position during late-term pregnancy	Hematocrit, flat neck veins on exam, ECG with rapid narrow complex, history of bleeding	Volume administration, blood administration if indicated. Left-side positioning for pregnant patient.
Hypoxia Narcotic/sedative overdose, carbon monoxide poisoning, methemoglobinemia, drowning	Pulse oximetry, ET tube placement, ABGs. compromised airway, obvious respiratory distress, cyanosis, history of diabetes, bradycardia	Supplemental oxygenation, assisted ventilation, advanced airway, good CPR performance.
H+ Ion (Acidosis) DKA, respiratory or metabolic acidosis, drug overdose, toxic exposure, renal failure	Physical exam, lab tests, ABGs: $PaCO_2$ > 45 mm Hg, history of diabetes, tachypnea, low-amplitude QRS	Ensure adequate perfusion, oxygenation, and ventilation. Correct acid/base abnormalities. Sodium bicarbonate if indicated. Treat toxicological causes.
Hypo/Hyperkalemia Renal failure, vomiting/diarrhea, iatrogenic causes, transfusion, crash injuries	Physical exam, dialysis, history of diabetes or diuretics, wide complex QRS. Hypo: Flat T waves and prominent U waves, prolonged QT interval. Hyper: Tall and peaked T waves, small P waves.	Identify/treat specific electrolyte imbalance. Hypo: potassium replacement. Hyper: sodium bicarbonate, calcium chloride, glucose with insulin.
Hypothermia Patient presents hypothermic	Shivering, previous exposure to cold. Assess core body temperature. ECG: J or Osborne waves.	Active/passive, external/internal rewarming of core temp above 86**°F** (30**°C**).
Tension Pneumothorax Positive pressure ventilators, Trauma, Asthma, COPD	Physical exam: Diminished/unequal lung sounds, JVD. No pulse with CPR, patient difficult to ventilate, tracheal deviation (late sign). Narrow complex Bradycardia (hypoxia)	Emergent needle decompression, chest tube thoracostomy.
Tamponade (Cardiac) Trauma, chest compressions, carcinoma, central line perforations, renal failure	Bedside ultrasound, echocardiogram. Physical exam: muffled heart sounds, JVD. Pulsus paradoxus. No pulse with CPR. Pre-arrest symptoms. Narrow-complex tachycardia	Volume administration, pericardiocentesis, thoracotomy.
Thrombosis (Coronary) STEMI or other acute MI	Patient presents with symptoms of ACS. Elevated cardiac markers on lab test. 12-lead ECG: ST segment changes, T wave inversion, Q waves	Administer aspirin, oxygen, nitroglycerin, morphine (if no response to nitrates). Vasopressors if required. Fibrinolytic therapy, PCI. IABP, CABG.
Thrombosis (Pulmonary) STEMI or other acute MI	Diagnostic imaging, physical exam: JVD. Prior history of DVT or PE. Risk factors. No pulse with CPR. Narrow-complex tachycardia	Volume administration, dopamine, heparin. fibrinolytic therapy. Consider rtPA. Pulmonary thrombectomy.
Toxins Street drugs, prescription or OTC medications, industrial/workplace chemical exposure, environmental exposure	Thorough history assessment to identify specific overdose agent. Risk factors. Physical exam: bradycardia, neurological changes, pupils. Prolonged QT interval	Administer antidote based on overdose agent. Support circulation, careful titration of volume therapy, vasopressors for hypotension. Ensure adequate perfusion, oxygenation, ventilation. Prolonged CPR if needed. Cardiopulmonary bypass. ***TCA overdose:*** bicarbonate ***Calcium channel blocker/ß-blocker overdose:*** glucagon, calcium ***Cocaine overdose:*** benzodiazepines (Do not administer nonselective ß-blockers).