

## H's and T's

Condition	EKG	History & Physical	Recommended Treatment
Hypovolemia	Narrow Complex/Rapid Rate	Fluid Loss Possible, Flat Neck Veins	Volume SBP >90 Ideally For Adult
Hypoxia	Slow Rate	Cyanosis, ABG, Airway Problems	Oxygen and Ventilation Airway Management
Hydrogen Ion Acidosis	Smaller Amplitude QRS Complex	Diabetes, Renal Failure, Sepsis Bicarb- Responsive Pre-Existing Acidosis	Hyperventilation Sodium Bicarb
Hyperkalemia  >6 life threatening	Wide Complex QRS Peaked T Waves	Renal Failure, Dialysis, Medications, burns, Diabetes, HIV, excessive alcohol use, various medications	Sodium Bicarb Glucose/Insulin Calcium Chloride Kayexalate, Albuterol, Dialysis
Hypokalemia  < 2.5 life threatening	Flattened T Waves Prominent U Waves Prolonged QT	Abnormal Use of Potassium Diuretic Use, Renal Disease, excessive alcohol use, DKA	Potassium Infusion Magnesium If in Cardiac Arrest
Hypothermia	J or Osborne Waves	Exposure to Cold, Central Body Temp of <95° F or <35°C	Gradual Rewarming
Hypoglycemia (PALS)	Lengthening of QT Intervals	Confusion or drowsiness, seizures, loss of consciousness, cold and clammy	IV containing dextrose or glucagon
Toxins	Various Effects Arrhythmia (Brady or Tachy) Prolonged Q-T, VT, Asystole	Known Ingestion, Empty Bottles at Scene, Evidence of Drug Use, Abnormal Pupils, Neuro Exam	Drug Screens, Airway Mang, Gastric Lavage, Activated Charcoal, Antidotes
Tamponade (Cardiac)	Narrow Complex/Rapid Rate	Narrowing Pulse Pressures, Muffled Heart Sounds, Neck Vein Distention, DX With Echo	Pericardiocentesis
Tension Pneumothorax	Narrow Complex, Slow rate (hypoxia)	Neck Vein Distention, Tracheal Deviation, Unequal Breath Sounds, Difficult to Ventilate, if possible obtain a chest X-ray	Needle Decompression Thoracotomy/Chest Tube
Thrombosis (Coronary)	Abnormal 12-lead, Q Waves, ST Segment Changes, T wave Inversions	ACS Symptoms, Cardiac Markers, 12 lead- STEMI, Hypokalemia, Neck Vein Distention (inferior wall MI)	MONA, Cath Lab- PCI <90 from first medical contact, CABG, or Fibrinolytics
Thrombosis (Pulmonary)	Narrow Complex/Rapid Rate	No Pulse with CPR (saddle), Distended Neck Veins, Positive Test For DVT or PE	Surgical Embolectomy, Fibrinolytics