Contra Costa County Emergency Medical Services

Narrow Complex Tachycardia

History
- Medications (e.g. Aminophylline, Adderall, diet pills, thyroid supplements, decongestants, and Digoxin)
- Diet
- Drugs (e.g. nicotine and illegal drugs)
- Past medical history
- History of palpations/heart racing
- Syncope/near syncope

Signs and Symptoms
- Heart rate > 150 with narrow, regular complexes
- Systolic BP < 90
- Dizziness, chest pain, shortness of breath, altered mental status, or diaphoresis
- CHF
- Potential presenting rhythm:
  - Atrial/sinus tachycardia
  - Atrial fibrillation/flutter
  - Multifocal atrial tachycardia
  - Ventricular tachycardia

Differential
- Heart disease (e.g. WPW or valvular)
- Sick sinus syndrome
- Myocardial infarction
- Electrolyte imbalance
- Exertion, pain, or emotional stress
- Fever
- Hypoxia
- Hypovolemia or anemia
- Drug effect/overdose (see History)
- Hypothyroidism
- Pulmonary embolus

Assess symptom severity

Unstable
(HR typically > 150)

Cardiac monitor
Consider sedation pre-cardioversion
Midazolam 1mg IV/IO
May repeat if needed in 1-2mg increments
Maximum 5mg
EtCO₂ monitoring
Establish IV/IO

Regular rhythm (SVT)
(QRS ≤ 0.09 sec)

Synchronized cardioversion
100J
May repeat in escalating energy (200J, 300J, 360J)
12-Lead ECG
or
repeat if rhythm change

Irregular rhythm
(A-Fib/A-Flutter)

Synchronized cardioversion
200J
May repeat in escalating energy (300J, 360J)
12-Lead ECG
or
repeat if rhythm change

Stable

Cardiac monitor
Consider IV/IO
12-Lead ECG
EtCO₂ monitoring
Attempt Valsalva maneuver

Regular rhythm (SVT)
(QRS ≤ 0.09 sec)

Notify receiving facility.
Contact Base Hospital for medical direction, as needed.

Irregular rhythm
(A-Fib/A-Flutter)

Adenosine 6mg IV/IO rapid push
May repeat 12mg IV/IO
If rhythm change, repeat 12-Lead ECG

Effective Jan. 2020
Notify receiving facility.
Contact Base Hospital for medical direction, as needed.
Pearls

• Most important goal is to differentiate the type of tachycardia and if STABLE or UNSTABLE.
• If at any point the patient becomes unstable, move to the unstable arm of the algorithm.
• For ASYMPTOMATIC patients (or those with only minimal symptoms, such as palpitations) and any tachycardia with a rate of approximately 100 – 120 with a normal blood pressure, consider CLOSE OBSERVATION or fluid bolus rather than immediate treatment with an anti-arrhythmic medication. For example, a patient’s “usual” atrial fibrillation may not require emergent treatment.
• All Adenosine administrations should be immediately followed by a 20ml rapid flush.
• Typical sinus tachycardia is in the range of 100 to (200 – the patient’s age) beats per minute.
• Symptomatic tachycardia usually occurs at rates of 120 – 150 and typically ≥ 150 beats per minute. Patients who are symptomatic with heart rates < 150 likely have impaired cardiac function, such as CHF.
• **Serious Signs / Symptoms include:** Hypotension; acutely altered mental status; signs of shock/poor perfusion; chest pain with evidence of ischemia (e.g. STEMI, T-wave inversions or depressions); and acute CHF.
• Search for underlying cause of tachycardia such as fever, sepsis, dyspnea, etc.
• If patient has a history or if 12-Lead ECG reveals Wolfe Parkinson White (WPW), use caution with Adenosine and give only with a defibrillator immediately available.
• Regular Narrow-Complex Tachycardias:
  • Adenosine may be considered to assist with rhythm diagnosis or if a patient has a history of Adenosine conversion.
  • Adenosine may not be effective with atrial fibrillation/flutter, yet is not harmful and may help identify rhythm.
• Synchronized Cardioversion is recommended to treat UNSTABLE atrial fibrillation/flutter and monomorphic-regular tachycardia (SVT).
• Monitor for respiratory depression and hypotension associated with Midazolam.
• Continue pulse oximetry and EtCO₂ monitoring is required for all narrow complex tachycardia patients.
• Providers must export all monitor data to EHR when caring for and treating narrow complex tachycardia patients.