Adult Monomorphic Tachycardia

Wide Complex (≥0.12 sec)

History
- Age
- Past medical history (MI, Angina, Diabetes, post menopausal)
- Recent physical exertion
- Palpitations, irregular heart beat
- **T**ime (onset /duration / repetition)

Signs and Symptoms
- Chest pain, heart failure, dyspnea
- AMS
- Shock, poor perfusion, hypotension
- Pale, diaphoresis
- Shortness of breath
- Nausea, vomiting, dizziness

Differential
- Trauma vs. Medical
- Sinus Tachycardia vs. dysrrhythmia
- Fever, sepsis, infection
- Pericarditis, pulmonary embolism
- Aortic dissection or aneurysm
- Overdose: Stimulants

Assess tachycardia in context of clinical condition
Identify and treat underlying cause of tachycardia

Unstable/ Serious Signs and Symptoms
HR Typically > 150
Hypotension, Acute AMS, Ischemic Chest Pain, Acute CHF, Seizures, Syncope, or Shock secondary to tachycardia

YES →

P	Cardiac Monitor
P	Cardioversion Procedure
P	**Consider Sedation Prior to Cardioversion** **Midazolam 2 – 2.5 mg IV / IO** May repeat as needed **Maximum 10 mg**
P	**Wide: Regular and Irregular: 200J** • **Monomorphic QRS (Synchronized)** • **Polymorphic QRS (Not-Synchronized)** *May repeat and increase dose with subsequent cardioversion attempts*

NO

B	12 Lead ECG Procedure
P	Cardiac Monitor
	IV or IO Access Protocol UP 6
P	**Consider consultation with medical control**

Regular Rhythm?

YES →

P	Attempt Vagal Maneuvers Procedure ***Only if regular monomorphic complex***
P	***Consider*** **Only if regular monomorphic complex** **Adenosine 6 mg IV / IO** Rapid push with flush May repeat **12 mg IV / IO**

NO

P	**Lidocaine 1 mg / kg IV / IO** If No Improvement **Repeat 1 mg/kg every 10 minutes** **Maximum 3 mg/kg** **IF LIDOCAINE NOT AVAILABLE** **Amiodarone 150 mg in 100 mL of D5W IV / IO** **Infuse over 10 minutes** May repeat if wide complex tachycardia recurs Then initiate infusion of **Amiodarone 450 mg in 250 mL of D5W** **1 mg/min (33 mL/hr) IV / IO**
	Monitor and Reassess
	Notify Destination or Contact Medical Control

Monomorphic QRS:
- **All QRS complexes in a single lead are similar in shape.**

Adult Cardiac Protocol Section

Adult Monomorphic Tachycardia
Wide Complex (≥0.12 sec)

Adult Cardiac Protocol Section

ECG and rhythm information should be interpreted in context of the entire patient assessment:

- Tachycardia is defined as heart rate > 100 but rarely causes symptoms unless > 120 in the adult.
- **The most important decision point in care is whether the patient is stable or unstable.**

- Tachycardias are identified in several ways based on appearance of the QRS complex, heart rate, and if regular or irregular.
- Main objective is to recognize and differentiate between sinus tachycardia, narrow-complex supraventricular tachycardia and wide-complex tachycardia.
- Next you should identify the underlying cause of the tachycardia and whether it is the primary reason for the problem, or secondary to a problem like anxiety, fever, shock, or sepsis.

Wide-QRS-Complex Tachycardia (QRS ≥ 0.12 sec) in order of frequency:
Ventricular Tachycardia > Ventricular Fibrillation SVT with aberrancy > Wolff-Parkinson-White (WPW) > Ventricular rhythms

Pearls

- **Recommended Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Extremities, Neuro**
- **Most important goal is to differentiate the type of tachycardia and if STABLE or UNSTABLE and if SYMPTOMATIC.**
- **12-Lead ECG:**
  12-Lead ECG is not necessary to diagnose and treat arrhythmia. A single lead ECG is often all that is needed. Obtain12-Lead when patient is stable and/ or following a rhythm conversion.
- **Monomorphic QRS:**
  All QRS complexes in a single lead are similar in shape.
- **Polymorphic QRS:**
  QRS complexes in a single lead will change shape from complex to complex.
- **Rhythm should be interpreted in the context of symptoms and pharmacological or electrical treatment given only when symptomatic, otherwise monitor and reassess.**
- **Unstable condition**
  Condition which acutely impairs vital organ function and cardiac arrest may be impending.
  If at any point patient becomes unstable move to unstable arm in algorithm.
- **Symptomatic condition**
  Arrhythmia is causing symptoms such as palpitations, lightheadedness, or dyspnea but cardiac arrest is not impending.
  Symptomatic tachycardia usually occurs at rates ≥ 150 beats per minute. Patients symptomatic with heart rates < 150 likely have impaired cardiac function such as CHF.
- **Serious Signs/ Symptoms:**
  Hypotension. Acutely altered mental status. Signs of shock/ poor perfusion. Chest pain with evidence of ischemia (STEMI, T wave inversions or depressions.) Acute congestive heart failure.
- **Search for underlying cause of tachycardia such as fever, sepsis, dyspnea, etc.**
- **Typical sinus tachycardia is in the range of 100 to (220 – patients age) beats per minute.**
- **If patient has history or 12-Lead ECG reveals Wolfe Parkinson White (WPW), DO NOT administer a Calcium Channel Blocker (e.g., Diltiazem) or Beta Blockers. Use caution with Adenosine and give only with defibrillator available.**
- **Regular Wide-Complex Tachycardia:**
  Unstable condition:
  Immediate defibrillation if pulseless and begin CPR.
  Stable condition:
  Typically VT or SVT with aberrancy. Adenosine may be given if regular and monomorphic and if defibrillator available.
  Verapamil contraindicated in wide-complex tachycardias.
  Agencies using Amiodarone, Procainamide, and Lidocaine need to choose one agent primarily. Giving multiple anti-arrhythmics requires contact of Medical Control.
  Atrial arrhythmias with WPW should be treated with Amiodarone or Procainamide
- **Irregular Tachycardia:**
  Wide-complex, irregular tachycardia: Do not administer calcium channel, beta blockers, or adenosine as this may cause paradoxical increase in ventricular rate. This will usually require cardioversion. Contact Medical Control.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.