



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
- Time (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. dysrhythmia
- 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

Cardiac Monitor
Cardioversion Procedure
Consider Sedation Prior to Cardioversion
Midazolam 2 - 5 mg IV / IO / IN May repeat as needed Maximum 10 mg
Wide: Regular and Irregular: 200 – 360J
• Monomorphic QRS (Synchronized)
• Polymorphic QRS (Not-Synchronized)
<i>May repeat and increase dose with subsequent cardioversion attempts If refractory – change pad placement</i>

NO

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

Regular Rhythm?

NO

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

P	Amiodarone 150 mg in 100 mL of D5W/NSS IV / IO Infuse over 10 minutes	
	OR	
	Lidocaine 1.5 mg/kg IV May Repeat x1 – Max Dose 3mg/kg	
	Monitor and Reassess	
	Notify Destination or Contact Medical Control	

Monomorphic QRS:

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



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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. Obtain 12-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 $(220 - \text{patients age})$ 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.