



# ADULT MONOMORPHIC TACHYCARDIA WIDE COMPLEX ( $\geq 0.12$ 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**

**P** Cardiac Monitor

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

Cardiac Monitor

Cardioversion Procedure

**Consider Sedation Prior to Cardioversion**  
**MIDAZOLAM**  
2 – 2.5 mg IV / IO, 5 mg IM / IN  
May repeat as needed  
(Maximum 10 mg)

**Wide and Irregular: 200J**  
**Monomorphic QRS (Synchronized)**  
**Polymorphic QRS (Not-Synchronized)**

May repeat cardioversion attempts

**B** 12 Lead ECG Procedure

IV or IO Access Protocol UP 6

**P** Consider consultation with medical control

**Regular Rhythm?**

**P** Attempt Vagal Maneuvers Procedure  
*Only if regular monomorphic complex*

**Consider**  
**Only if regular monomorphic complex**  
**ADENOSINE**  
6 mg IV / IO  
Rapid push with flush  
May repeat 12 mg IV / IO

**P**

**AMIODARONE 150 mg**  
in 50 mL of NS IV / IO  
Infuse over 10 minutes  
May repeat if wide complex tachycardia recurs

**OR**

**LIDOCAINE 1 mg/kg IV / IO**

If rhythm converts with HR > 60 BPM  
**LIDOCAINE 1-4 mg/min IV / IO infusion**  
(see Notes for instructions)

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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## AMIODARONE INFUSION INSTRUCTIONS

**DOSE: 150 mg/50 mL infused over 10 minutes**

- Inject 150 mg of Amiodarone into 50 mL Normal Saline bag
- Using a 10 gtt IV set, administer 50 gtt/minute

## LIDOCAINE DRIP INSTRUCTIONS:

- Remove 10 mL of Normal Saline from a 50 mL bag
- Inject 200 mg of Lidocaine (2 x 100mg / 5 mL) into the 40 mL of Normal Saline
- Lidocaine concentration: 200 mg/50 mL = 4 mg/mL
- Utilize a 60 gtt set.

### DRIP RATES

- 1 mg/min = 15 gtt/min
- 2 mg/min = 30 gtt/min
- 3 mg/min = 45 gtt/min
- 4 mg/min = 60 gtt/min

Calculation formula for **NON-WEIGHT** based dosing:

$$\frac{\text{desired dose (mg/min)} \times \text{drop set (60 gtt/mL)}}{\text{concentration (4 mg/mL)}} = \text{gtt/min}$$

## Pearls

- **Recommended Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro**
- **Most important goal is to differentiate the type of tachycardia and if STABLE or UNSTABLE and SYMPTOMATIC.**
- **12-Lead ECG:**  
12 Lead ECG not necessary to diagnose and treat arrhythmia. A single lead ECG is often all that is needed. Obtain when patient is stable and/or following 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 imminent. 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 imminent.  
Symptomatic tachycardia usually occurs at rates  $\geq 150$  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 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.