



Adult Polymorphic Tachycardia

WIDE (≥ 0.12 sec) Torsades de pointes



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

- Cardiac arrest
- Sinus Tachycardia vs. dysrhythmia
- Fever, sepsis, infection
- Pericarditis, pulmonary embolism
- Aortic dissection or aneurysm
- Overdose

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

P

Defibrillation Procedure

Consider Sedation Prior to Defibrillation

Midazolam 2 – 2.5 mg IV / IO

May repeat as needed

Maximum 10 mg

Wide and Irregular: 200J

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

Pulse Present?

YES

P

Consider consultation with medical control

NO

Exit to
Cardiac Arrest
Protocol AC 3

QT Interval < 500 msec

QT Interval > 500 msec

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

Consider
Magnesium 2 g IV / IO

May repeat

Maximum 4 g

Monitor and Reassess

Polymorphic QRS:

- QRS complexes in a single lead will change shape from complex to complex.

Notify Destination or
Contact Medical Control



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

- 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.
- 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.

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, 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
 - 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 ≥ 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.
- **Polymorphic / Irregular Tachycardia:**
 - This situation is usually unstable and immediate defibrillation is warranted.
 - If QT length is known, use for decision-making. Prolonged QT length defined as > 500 msec.
 - QT length < 500 msec:
 - Arrhythmia more likely related to ischemia or infarction and Magnesium not likely helpful.
 - May quickly deteriorate into Ventricular Fibrillation.
 - Even when terminated by defibrillation, may recur, so follow with medication therapy.
 - QT prolongation > 500 msec:
 - Magnesium more likely to be helpful.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.