



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

YES

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: 200 – 360J

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

Amiodarone 150 mg in
100 mL of D5W IV / IO
Infuse over 10 minutes
May repeat if tachycardia recurs or persists

Amiodarone 450 mg in 250 mL of D5W
1 mg/min (33 mL/hr)

Or

Lidocaine
1 – 1.5 mg/kg IV / IO

May repeat if refractory
Lidocaine
0.75 mg/kg IV / IO

Maximum 3 mg/kg

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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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.