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

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

YES →

P — Defibrillation 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

Polymorphic QRS (Not-Synchronized)

May repeat cardioversion attempts

NO →

B — 12 Lead ECG Procedure

IV or IO Access Protocol UP 6

Pulse Present?

NO → Exit to Cardiac Arrest Protocol AC 3

YES → P — **Consider consultation with medical control**

QT Interval < 500 msec

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

Or

LIDOCAINE
1 – 1.5 mg/kg IV / IO
If refractory, may repeat
0.75 mg/kg IV / IO

(Maximum 3 mg/kg)

Monitor and Reassess

QT Interval > 500 msec

P —
Consider
MAGNESIUM SULFATE
2 g IV / IO
over 5-10 minutes
May repeat
(Maximum 4 g)

Monitor and Reassess

Notify Destination or Contact Medical Control

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

Adult Cardiac Protocol Section

ADULT POLYMORPHIC TACHYCARDIA
WIDE (≥ 0.12 SEC) TORSADES DE POINTES

AMIODARONE INFUSION INSTRUCTIONS

DOSE: 150 mg/100 mL infused over 10 minutes

- Inject 150 mg of Amiodarone into 100 mL D5W bag
- Using a 10 gtt IV set, administer 100 gtt/minute

MAGNESIUM SULFATE INFUSION INSTRUCTIONS

DOSE: 2 g infused over 10-20 minutes
Packaged 4 g/100 mL BAG or 5 g/10 mL VIAL

- Remove 50 mL (2 g) from 100 mL (4 g) bag of Magnesium Sulfate
- Reserve withdrawn 50 mL (2 g) in case repeat dose is needed

OR

- Withdraw 2 g from vial and inject into 50 mL Normal Saline bag
- Using a 10 gtt IV set, administer 50 gtt/minute

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.