PEDIATRIC TACHYCARDIA WITH A PULSE

Initial Interventions
- Ensure adequate airway, oxygenation and ventilation
- Monitor pulse oximetry and end-tidal CO_2 (if available)
- Assess pulses and perfusion
- Establish cardiac monitoring
- Monitor blood pressure
- Ensure IV/IO access (as clinically indicated)
- Perform 12-lead ECG if available; do not delay care
- Identify potential underlying causes

Evaluate rhythm

Probable Sinus Tachycardia
- Normal P waves present
- Beat-to-beat variability (variable R-R interval) with constant PR interval
- Children: usually < 180 bpm
- Infants: usually < 220 bpm

Identify and treat underlying causes

Inadequate perfusion?
(hypotension, acutely altered mental status, signs of shock)

YES

Evaluate QRS duration

NARROW

Probable supraventricular tachycardia (narrow, ≤0.09 sec)
- P waves absent or abnormal
- Minimal to no beat-to-beat variability (constant R-R interval)
- Children: usually ≥ 180 bpm
- Infants: usually ≥ 220 bpm

- Administer **adenosine** if vascular access present after adenosine
- If adenosine is ineffective or IV/IO cannot immediately be obtained:
  - Perform **synchronized cardioversion**

- Obtain expert consultation

WIDE

Probable ventricular tachycardia (wide, >0.09 sec)

Perform **synchronized cardioversion**

- Obtain expert consultation

NO

Evaluate QRS duration

NARROW

Probable supraventricular tachycardia (narrow, ≤0.09 sec)
- P waves absent or abnormal
- Minimal to no beat-to-beat variability (constant R-R interval)
- Children: usually ≥ 180 bpm
- Infants: usually ≥ 220 bpm

- Attempt vagal maneuvers (do not delay further care)
- If ineffective, immediately administer **adenosine**

WIDE

Probable ventricular tachycardia (wide, >0.09 sec)

- If rhythm is regular and QRS monomorphic, consider **adenosine**

- Obtain expert consultation

Medication Therapy

Adenosine
- First dose: 0.1 mg/kg (max, 6 mg) by rapid IV/IO push

If ineffective:
- Second dose: 0.2 mg/kg (max, 12 mg) by rapid IV/IO push

Note: Follow each dose with a rapid 5 to 10 mL NS flush

Synchronized Cardioversion

- Begin with 0.5 to 1 J/kg.
- If ineffective, repeat at 2 J/kg. (Clinicians may increase the dosage more gradually.)
- Provide sedation and analgesia if it does not delay care. Selection of agents should account for risk of hemodynamic effects.

Potential Causes of Sinus Tachycardia

- Vigorous physical activity
- Anxiety
- Pain
- Infection and fever
- Tissue hypoxia
- Hypovolemia (caused by fluid or blood loss)
- Anemia
- Congestive heart failure/heart disease
- Medications (e.g., catecholamines)
- Illicit drugs (primarily stimulants)
- Metabolic issues
- Pulmonary embolism
- Tension pneumothorax
- Pericardial tamponade

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