



Clinical Guidelines

Supraventricular Tachycardia

Document Control Information

| | | | |
|----------------------|--------------------|-------------------------|---------------------|
| Author | P Ramnarayan | Author Position | CATS Consultant |
| Document Owner | E. Polke | Document Owner Position | Service Coordinator |
| Document Version | Version 3 | Replaces Version | January 2016 |
| First Introduced | | Review Schedule | 2 Yearly |
| Active Date | January 2018 | Next Review | January 2020 |
| CATS Document Number | | | |
| Applicable to | All CATS employees | | |



Supraventricular Tachycardia

Definition

Supraventricular tachycardia is broadly defined as a narrow, complex tachycardia that requires atrial tissue or the atrioventricular node as an integral part of the arrhythmia substrate. Typical features

- Heart rate >220
- Narrow complex, regular tachycardia (no beat by beat variability)
- If present, p waves are seen before every QRS complex

Aetiology

Most tachyarrhythmia in children are due to congenital re-entrant pathways but some are secondary to poisoning, metabolic disturbance, following cardiac surgery or cardiomyopathy.

1. Assessment

History

- Onset
- Associated pain, dyspnoea, syncope or dizziness
- Infants – poor feeding, pallor, tachypnoea, irritability
- Older children – palpitations, chest discomfort
- Medication
- PMHx – Congenital cardiac problems/surgery
- Sometimes diagnosed antenatally (atrial flutter)

Clinical Assessment

- Airway and breathing
- Circulation
 - ECG strip and 12 lead ECG
 - Assess for signs of cardiogenic shock
 - Prolonged CRT
 - Low BP
 - Acidotic Blood Gas
 - Gallop rhythm
 - Enlarged liver
 - Discuss with cardiology team early
- Disability
 - Agitation, confusion
- Exposure
 - Rule out other causes of presentation (as above)
- Electrolytes
 - Check electrolytes (including Mg, PO₄, Ca, K)
 - Check drug levels (if on Theophylline or Digoxin)
- Infection
 - May be a presenting feature of myocarditis
 - Consider antibiotics in neonates

2. Immediate management

- Vagal manoeuvres
 - diving reflex
 - one sided carotid sinus massage
 - Valsalva manoeuvre in older child
- Follow APLS algorithm below (Have ECG strip monitoring attached and printing if possible)

IF ADENOSINE FAILS, DISCUSS WITH PAEDIATRIC CARDIOLOGIST.

Further options may be:

- **Assume cardiac dysfunction is present.**
- Amiodarone has a negative inotropic effect and may compromise cardiovascular state. Amiodarone infusion, usually start at 25mcg/kg/min for 4 hours and then reduce to 10-15mcg/kg/min
- If no evidence of cardiac dysfunction: Amiodarone bolus **5 mg/kg over 30 minutes**, followed by repeat chemical cardioversion with adenosine if SVT persistent
- +/- elective DC cardioversion

Indications for intubation (see CATS Intubation guideline)

- Adenosine resistant SVT – need for DC cardioversion
- Cardiac failure with acidosis
- Impending cardiorespiratory collapse

Intubation

- Use cardiostable induction agents (see CATS Intubation guideline).
- Inotropic agents to be available in case of deterioration during/post-intubation.

3. Management following intubation

- Sedate and use muscle relaxation.
- Correct acidosis – give up to 30 mls/kg volume, bicarbonate and consider inotropic support (be aware that inotropes may precipitate further dysrhythmias –discuss use with CATS consultant)
- Continue to try to achieve sinus rhythm (discuss with CATS consultant and paediatric cardiologist)

Intractable SVT

If SVT is intractable and associated with severe acidosis, consider transport to an ECMO centre for further support (discuss with CATS consultant and ECMO Consultant)

APLS ALGORITHM

