Ashford and St. Peter's Hospitals
NHS Foundation Trust

Supraventricular Tachycardia Management in Paediatric Accident Emergency

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Supervisor: Name and designation

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Guideline History		
Date	**Comments**	**Approved By**
30/03/2017	Approved as new guideline	
16/01/2023	Reviewed – template changed but not content change	Dr Alison Groves

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Supraventricular Tachycardia Management in Paediatric Accident Emergency

Definition

Supraventricular tachycardia is a narrow complex tachycardia.

Typical features

- Heart rate >220
- Narrow complex, regular tachycardia (no beat by beat variability)
- p waves before every QRS complex (may be buried within it)
- Infants may present in Heart failure if tachycardia is persistent.

Assessment at Triage

Symptoms

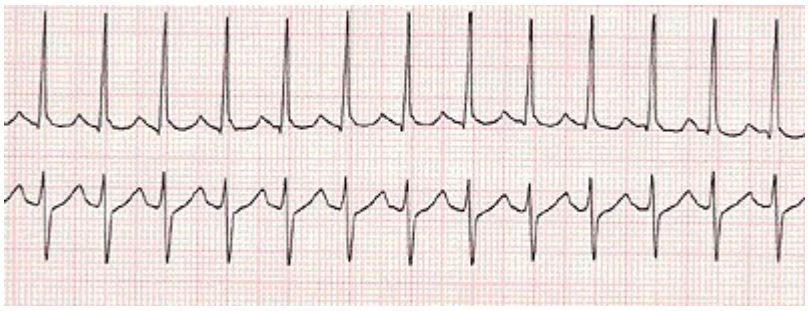
- Infants - pallor, dyspnoea, poor feeding.
- Older children - palpitations, chest discomfort

Clinical Assessment and action

- Airway (If saturations less than 92%-95% apply oxygen 10 l/ min by face mask)
- Breathing
- Circulation
    - Assess for signs of cardiogenic shock ♣ Prolonged CRT ♣ Low BP ♣ Acidotic Blood Gas with high lactate ♣ Gallop rhythm ♣ Enlarged liver+ high BNP
    - ECG strip and 12 lead ECG
- Disability: Agitation, confusion
- Exposure: Rule out other causes of presentation (as above)
- Electrolytes: Check electrolytes (including Mg, PO4, Ca, K),
  Consider: Cardiac enzymes =Troponin (in case ?myocarditis), CK, TFTs
- Check drug levels (if ingestion or Digoxin)
- Infection – can be a sign of myocarditis = viral (Consider antibiotic cover in neonates)

Investigations

12 lead ECG showing regular narrow complex tachycardia.

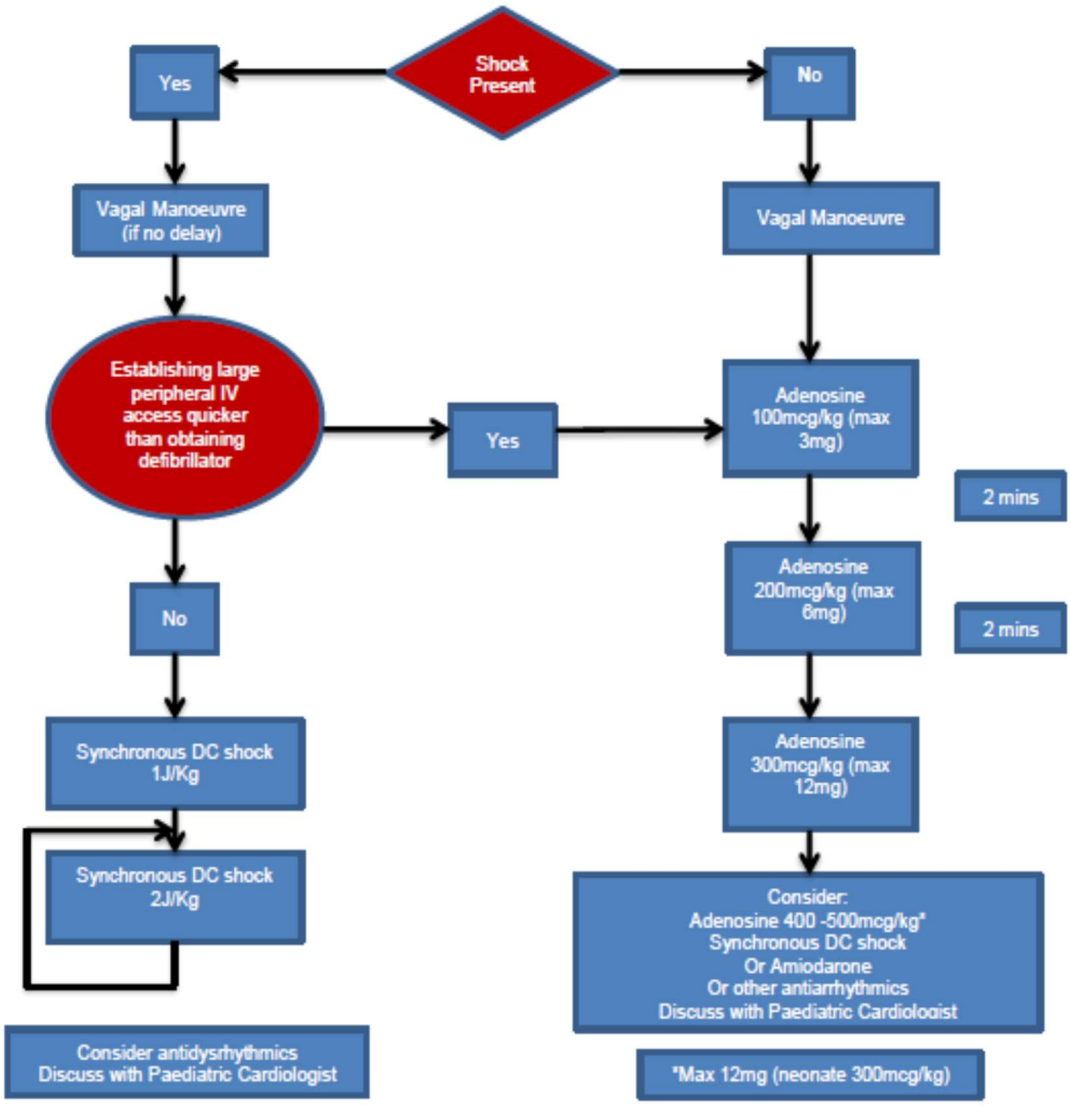


Indication for echo - signs of poor ventricular function

Management: Immediate management

- If child is not shocked treat with vagal manoeuvres
- If unsuccessful use intravenous adenosine
    - ✓ Diving reflex elicited by wrapping and dunking in ice bucket
    - ✓ Valsalva manoeuvre in older child
- Follow APLS algorithm below
    - Transfer to HDU or Resus room
    - Call for more senior help
    - Monitor with continuous ECG trace and frequent measurements of blood pressure
    - If child is shocked (ie. hypotensive, poor peripheral perfusion, impaired mental state) proceed to direct current cardioversion (see below)
    - Involve paediatric cardiologist Dr Alison Groves/Dr Tosin Otunla/ Royal Brompton hospital/ Consider involving STRS

APLS ALGORITHM



IF ADENOSINE FAILS, DISCUSS WITH PAEDIATRIC CARDIOLOGIST.

Further options: Consider whether 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 cardiac dysfunction: Amiodarone bolus 5 mg/kg over 20 minutes, followed by repeat chemical cardioversion with adenosine if SVT persistent +/- elective DC cardioversion under GA.

IF DC SHOCK REQUIRED (rare)

Indicated in shock when not responding to Adenosine up to 500mcg/kg (12 mg maximum) plus other anti-arrhythmic medications as advised

Young children/infants sedation is usually adequate

Older children/ teenagers will probably require a GA

NB myocarditis and hypotension will affect the choice of induction agent

Start at 1 J/kg and increase to 2J/kg if no response

2. Supporting References

APLS 5th edition 2010 https://www.resus.org.uk/resuscitation-guidelines/paediatric-advanced-life-support/SVT

http://site.cats.nhs.uk/wp-content/uploads/2016/01/cats_svt_2015.pdf

(Clinical Guidelines; Supraventricular Tachycardia Children's Acute Transport Service NHS Trust)

http://www.strs.nhs.uk/resources/pdf/guidelines/arrythmias.pdf (Clinica Guidelines; Supraventricular Tachycardia, STRS)

3. Supporting relevant trust guidelines

2. Guideline Governance

a. Scope

This guideline is relevant to all staff caring for all children from 0-18 years old across the emergency department, inpatient ward and outpatient department.

b. Purpose

i. This guidelines aims to facilitate a common approach to the management of children. At times deviation from the guideline may be necessary, this should be documented and is the responsibility of the attending consultant.

ii. This guideline is subject to regular review to ensure ongoing evidence based practice.

c. Duties and Responsibilities

All healthcare professionals responsible for the care of all children 0-18years should be aware of practice according to this guideline.

d. Approval and Ratification

This guideline will be approved and ratified by the Paediatric Guidelines Group.

e. Dissemination and Implementation

i. This guideline will be uploaded to the trust intranet 'Paediatric Guidelines' page and thus available for common use.
ii. This guideline will be shared as part of ongoing education within the Paediatric Department for both medical and nursing staff.
iii. All members of staff are invited to attend and give comments on the guideline as part of the ratification process.

f. Review and Revision Arrangements

a. This policy will be reviewed on a 3 yearly basis by the appropriate persons.
b. If new information comes to light prior to the review date, an earlier review will be prompted.
c. Amendments to the document shall be clearly marked on the document control sheet and the updated version uploaded to the intranet. Minor amendments will be ratified through the Paediatric Guidelines Group. A minor amendment would consist of no major change in process, and includes but is not limited to, amendments to documents within the appendices.

g. Equality Impact Assessment

Background • Who was involved in the Equality Impact Assessment
Author and the supervising consultants.
Methodology • A brief account of how the likely effects of the policy was assessed (to include race and ethnic origin, disability, gender, culture, religion or belief, sexual orientation, age) • The data sources and any other information used • The consultation that was carried out (who, why and how?)
All groups of staff and patients were taken into consideration and there is no bias towards or against any particular group.
Key Findings • Describe the results of the assessment • Identify if there is adverse or a potentially adverse impacts for any equalities groups
There is no evidence of discrimination.
Conclusion • Provide a summary of the overall conclusions
There is no evidence of discrimination.
Recommendations • State recommended changes to the proposed policy as a result of the impact assessment • Where it has not been possible to amend the policy, provide the detail of any actions that have been identified • Describe the plans for reviewing the assessment
This guideline is appropriate for use.

h. Document Checklist

To be completed (electronically) and attached to any document which guides practice when submitted to the appropriate committee for approval or ratification.

Title of the document: **Supraventricular Tachycardia Management in Paediatric Accident Emergency**

Policy (document) Author: Dr Alison Grove

Executive Director: N/A

		Yes/No/ Unsure/NA	Comments
1.	**Title**		
	Is the title clear and unambiguous?	**Y**	
	Is it clear whether the document is a guideline, policy, protocol or standard?	**Y**	
2.	**Scope/Purpose**		
	Is the target population clear and unambiguous?	**Y**	
	Is the purpose of the document clear?	**Y**	
	Are the intended outcomes described?	**Y**	
	Are the statements clear and unambiguous?	**Y**	
3.	**Development Process**		
	Is there evidence of engagement with stakeholders and users?	**N/A**	
	Who was engaged in a review of the document (list committees/ individuals)?		**Initially ratified in 2017**
	Has the policy template been followed (i.e. is the format correct)?	**Y**	
4.	**Evidence Base**		
	Is the type of evidence to support the document identified explicitly?	**Y**	

		Yes/No/ Unsure/NA	Comments
	Are local/organisational supporting documents referenced?	**Y**	
5.	**Approval**		
	Does the document identify which committee/group will approve/ratify it?	**Y**	**Paediatric Guidelines Committee**
	If appropriate, have the joint human resources/staff side committee (or equivalent) approved the document?	**N/A**	
6.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	**Y**	
	Does the plan include the necessary training/support to ensure compliance?	**Y**	**None needed. All doctors have APLS**
7.	**Process for Monitoring Compliance**		
	Are there measurable standards or KPIs to support monitoring compliance of the document?	**N**	
8.	**Review Date**		
	Is the review date identified and is this acceptable?	**Y**	
9.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for coordinating the dissemination, implementation and review of the documentation?	**Y**	
10.	**Equality Impact Assessment (EIA)**		
	Has a suitable EIA been completed?	Y	

Committee Approval (Paediatric Guidelines Group)			
If the committee is happy to approve this document, please complete the section below, date it and return it to the Policy (document) Owner			
Name of Chair	**Dr Claire Mitchell**	**Date**	**16/01/2023**
Ratification by Management Executive (if appropriate)			
If the Management Executive is happy to ratify this document, please complete the date of ratification below and advise the Policy (document) Owner			
Date: n/a			