CATS Clinical Guideline

Anaphylaxis/Latex allergy

1. Assessment

The purpose of this guideline is to suggest precautions to prevent allergic reactions in a patient suspected of latex allergy and treatment in cases of suspected anaphylaxis.

1.1 History of latex allergy usually has to be sought unless this is the presenting complaint.

1.2 Risk factors

- Repeated bladder catheterisation
- Spina bifida
- Cloacal abnormalities
- Multiple surgical procedures
- Atopy
- Drug allergies
- Food allergies: bananas, kiwi fruit, chestnuts and avocados.

1.3 Reactions are either delayed type IV or immediate type 1

Presenting features (during anaesthesia)

- No pulse/hypotension 26%
- Ventilation problem 24%
- Flushing 18%
- Desaturation 11%
- Coughing 7%
- Rash (incl. urticaria) 6%
- Other (oedema, etc) 8%
2. Immediate management

2.1 Avoid/remove precipitants. Call for help.

2.2 Primary actions

Secure the airway
FiO₂ to 1.0
Lie patient flat, elevate legs

<table>
<thead>
<tr>
<th>im Adrenaline (1 in 1000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;12 yrs</td>
</tr>
<tr>
<td>500mcg (0.5 ml)</td>
</tr>
<tr>
<td>6 to 12 yrs</td>
</tr>
<tr>
<td>300mcg (0.3 ml)</td>
</tr>
<tr>
<td>&lt;6 years</td>
</tr>
<tr>
<td>150 mcg (0.15ml)</td>
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</tbody>
</table>

Repeated after 5 minutes if required

iv /io Adrenaline (1 in 10 000)
1 mcg/kg – paediatric age group, maximum 50 mcg

ivi Adrenaline (0.3mg/kg in 50ml)
IVI run at 0.05-0.5 mcg/kg/min

Vascular volume expansion 20ml/kg, repeat as required

2.2 Secondary actions:

<table>
<thead>
<tr>
<th>AGE</th>
<th>Chlorpheniramine</th>
<th>Hydrocortisone</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6 months</td>
<td>250 micrograms/kg</td>
<td>25 mg</td>
</tr>
<tr>
<td>6 months – 6 years</td>
<td>2.5 mg</td>
<td>50 mg</td>
</tr>
<tr>
<td>6 – 12 years</td>
<td>5 mg</td>
<td>100 mg</td>
</tr>
<tr>
<td>&gt; 12 years</td>
<td>10 mg</td>
<td>200 mg</td>
</tr>
</tbody>
</table>

Salbutamol nebulisers 2.5mg - 5mg

3. Indications for intubation

- Airway obstruction
- Cardiorespiratory collapse
4. Intubation

4.1 Before intubation
4.1.1 If the child has evidence of airway obstruction with call for urgent senior anaesthetic and ENT support for intubation.
4.1.2 The child will almost certainly require an inhalational induction of anaesthesia and may require a surgical airway.
4.1.3 Give Adrenaline 10 mcg/kg im and Adrenaline 0.5 ml/kg 1:1000 nebulised (maximum 5 ml) while waiting.

4.2 Following intubation
4.2.1 Ventilate as for air trapping/bronchospasm:
- Pressure control (aim PIP <35 cmH₂O)
- Slow respiratory rate (eg rate 10-15 bpm)
- Long expiratory time (eg I:E 1:2)
- Permissive hypercapnoea - aim pH ≥ 7.2
- PEEP 5-10 cm H₂O to overcome intrinsic PEEP
- Consider manual decompression
- Muscle relax
4.2.2 Regular chest physiotherapy and suctioning for mucus plugging.
4.2.3 Bronchospasm should be treated as per asthma guideline.
4.2.4 Watch for pneumothoraces.
4.2.5 Occasionally an adrenaline infusion will be necessary, for resistant vasodilation +/- or bronchospasm. Discuss use with CATS consultant.
4.2.6 Administer NaHCO₃ for profound/refractory acidosis.
4.2.7 Investigations: mast cell tryptase samples ×3 (5-10 ml each):
- Immediately after reaction has been treated
- 1 hour after the reaction
- Between 6-24 hours after the reaction
It is essential to record the times on these samples and in the notes. All reactions should be recorded on a “Yellow Card” (found in BNF and MIMS).
The patient must be referred to an allergist in a defined Regional Allergy Centre.

5. Transport considerations – suspected latex allergy

5.1 Use of latex-free anaesthetic masks, ECG electrodes, blood pressure cuffs.
5.2 Drugs from bottles with rubber bungs should be avoided or a Chemo Mini Spike Plus used. A database to look up individual drugs is available on the Internet at http://www.ukmicentral.nhs.uk.
5.3 Drugs for treatment of allergic reactions should be drawn up in advance for patients with suspected latex allergy.
Anaphylaxis algorithm

Anaphylactic reaction?

Airway, Breathing, Circulation, Disability, Exposure

Diagnosis - look for:
- Acute onset of illness
- Life-threatening Airway and/or Breathing and/or Circulation problems
- And usually skin changes

Call for help
- Lie patient flat
- Raise patient's legs

Adrenaline

When skills and equipment available:
- Establish airway
- High flow oxygen
- IV fluid challenge
- Chlorphenamine
- Hydrocortisone
- Monitor:
  - Pulse oximetry
  - ECG
  - Blood pressure

1 Life-threatening problems:
- Airway: swelling, hoarseness, stridor
- Breathing: rapid breathing, wheeze, fatigue, cyanosis, SpO₂ < 92%, confusion
- Circulation: pale, clammy, low blood pressure, faintness, drowsy/coma

2 Adrenaline (give IM unless experienced with IV adrenaline) IM doses of 1:1000 adrenaline (repeat after 5 min if no better)
- Adult: 500 micrograms IM (0.5 mL)
- Child more than 12 years: 500 micrograms IM (0.5 mL)
- Child 6-12 years: 300 micrograms IM (0.3 mL)
- Child less than 6 years: 150 micrograms IM (0.15 mL)

Adrenaline IV to be given only by experienced specialists
Titrate: Adults 50 micrograms; Children 1 microgram/kg

3 IV fluid challenge:
- Adult: 500 – 1000 mL
- Child: crystalloid 20 mL/kg

Stop IV colloid if this might be the cause of anaphylaxis

4 Chlorphenamine (IM or slow IV)
- Adult or child more than 12 years: 10 mg
- Child 6 – 12 years: 5 mg
- Child 6 months to 6 years: 2.5 mg
- Child less than 6 months: 250 micrograms/kg

5 Hydrocortisone (IM or slow IV)
- Adult: 200 mg
- Child: 100 mg
- Child: 50 mg
- Child: 25 mg

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