Management Guideline for Non-typhoidal Salmonellosis in Children

Purpose

This guideline is to provide a standardised approach to the initial assessment and management of non-typhoidal salmonellosis in children.

Scope

This Guideline provides information for Children’s Health Queensland (CHQ) staff caring for paediatric patients with suspected non-typhoidal salmonellosis infections.

Related documents

Procedures, Guidelines, Protocols

- CHQ Guideline 63105: Diagnosis Table – Symptom / Disease Organism
Guideline

Management guideline for Non-typhoidal Salmonellosis (NTS) in children

*Salmonella sp.* present in stool, no bacteraemia

<table>
<thead>
<tr>
<th>Age</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 3 months of age</td>
<td>Treat with 7 days of antibiotics (oral therapy reasonable if child well)*. If febrile or unwell, a blood culture +/- Cerebrospinal fluid (CSF) is required.</td>
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<tr>
<td>3-12 months of age</td>
<td>If well despite diarrhoea: observe. No treatment required. If unwell: blood culture +/- CSF and commence empirical parenteral antibiotics. If blood culture is negative at 48 hours and clinically well, switch to oral antibiotics to complete 7 days.</td>
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<tr>
<td>&gt; 12 months of age</td>
<td>Generally no treatment required. If febrile, unwell or localising signs present - investigate as appropriate and consider empirical parenteral antibiotics</td>
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*Prolonged carriage:* Repeated stool testing is not recommended. There is no evidence to support treatment of prolonged carriage

*Persistent diarrhoea:* Consult Paediatric Infectious Diseases Specialist

Salmonella Bacteraemia (uncomplicated)\(^b\)

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<td>&lt; 3 months of age</td>
<td>10 days parenteral antibiotics. CSF analysis in all cases.</td>
</tr>
<tr>
<td>3-12 months of age</td>
<td>7 days parenteral antibiotics; CSF analysis if clinically indicated.</td>
</tr>
<tr>
<td>&gt; 12 months of age</td>
<td>7 days antibiotics (sequential parenteral/ oral therapy reasonable if child well)</td>
</tr>
</tbody>
</table>

Complicated infection

**Meningitis:**
- Intravenous Cefotaxime or Ceftriaxone for 4 to 6 weeks.
- Consider repeat lumbar puncture after 48-72 hours of therapy to ensure CSF sterility.
- If persistent growth in CSF, add ciprofloxacin (if susceptible) to Cefotaxime or Ceftriaxone for duration of therapy

**Osteomyelitis:**
- 4 to 6 weeks antibiotics (minimum 4 weeks parenteral antibiotics)

Selection of antibiotics

Choice of antibiotics depends on antibiotic sensitivities of *Salmonella sp.*

Recommended parenteral empiric therapy while awaiting sensitivities is:
- Cefotaxime IV (50mg/kg/dose every 6 hourly)
- or Ceftriaxone IV (100mg/kg once daily).
Recommended empiric oral therapy:
- Amoxycillin (30mg/kg/dose, orally, three times daily), or
- Trimethoprim-sulfamethoxazole (4mg/kg/dose of trimethoprim component, orally, twice daily) or
- Azithromycin (20mg/kg orally for first dose then 10mg/kg orally once daily for further 6 days).

Targeted antibiotic therapy is based on antibiotic susceptibilities of *Salmonella* species.

a. There is very limited evidence to guide treatment recommendations for NTS gastroenteritis in infants less than 3 months of age. Due to the increased risk for invasive disease and severe sequelae of invasive infection, we recommend treating all infants in this age group although risk of extra-intestinal dissemination needs to be balanced against the well-established risk of prolonged excretion.

b. Current literature suggests 7 to 10 days of antibiotics is sufficient for most age groups. Due to the increased risk for complications following bacteraemia, it is recommended a CSF analysis is performed in all infants under three months.

c. Regular review of resistance patterns recommended to guide empiric antibiotic therapy. Recommended empirical oral therapy is Amoxycillin, Trimethoprim-sulfamethoxazole or Azithromycin. Azithromycin should be used particularly if there are concerns about resistance e.g. returned travellers. Some caution is needed if using Trimethoprim-sulfamethoxazole in infants <2 months (risk of kernicterus) and in using Azithromycin in infants <1month (risk of hypertrophic pyloric stenosis).

d. Salmonella is a notifiable disease. Contact Public Health.

Acknowledgement

Children’s Health Queensland would like to acknowledge the contribution made by:
- Dr Sophie Wen (Paediatric Infectious Diseases Fellow, LCCH)
- Dr Clare Nourse (Paediatric Infectious Diseases Consultant, LCCH)

Consultation

Key stakeholders who reviewed this version:
- Director, Infection Management and Prevention services, LCCH
- Consultant Paediatricians, Infection Management and Prevention services, LCCH
- Antimicrobial Stewardship Pharmacist, LCCH

References and suggested reading

1. Therapeutic Guidelines: Antibiotics version 15 2014 Therapeutic Guidelines Ltd Australia
Guideline revision and approval history

<table>
<thead>
<tr>
<th>Version No.</th>
<th>Modified by</th>
<th>Amendments authorised by</th>
<th>Approved by</th>
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<tr>
<td>1.0</td>
<td>Infectious Diseases Consultant, Infection Management and Prevention services</td>
<td>Antimicrobial Stewardship Team</td>
<td>EDMS, Chair Medicines Advisory Committee</td>
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**Keywords**

Non-typhoidal Salmonellosis, meningitis, osteomyelitis, antibiotics, children, salmonella bacteraemia, cefotaxime, ceftriaxone, amoxycillin, azithromycin, trimethoprim-sulfamethoxazole, 63001

**Accreditation references**

EQuIP National Standard: 3 Preventing and Controlling Health Care Associated Infections