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British Thoracic Society guideline for non-CF bronchiectasis

i1 Summary of recommendations

i6 Section 1: Introduction

Reason for BTS Bronchiectasis Guideline
Guideline Group members
How has the Guideline been designed?
Definition
Methods
How common is bronchiectasis in adults and children in the 21st century?
What are the pathology and underlying causes?
What is the outlook for these patients?

i8 Section 2: Background and causes Causes and associations

What underlying causes and associations should be looked for when investigating a patient with bronchiectasis?
Congenital defects of large airways
Foreign bodies and aspiration
What is the current relevance of previous severe lower respiratory tract infections to patients with bronchiectasis?
Mycobacterium tuberculosis and opportunist mycobacteria
Immune deficiency and bronchiectasis
What is the relationship of other airway diseases to bronchiectasis?
What is the relationship of bronchiectasis to cystic fibrosis (CF)?
Which connective tissue disorders are associated with bronchiectasis?
Inflammatory bowel diseases
Disorders of ciliary function
Is α_1 -antitrypsin deficiency a cause of bronchiectasis?
Yellow nail syndrome
The upper respiratory tract in bronchiectasis patients

i13 Section 3: Clinical assessment and investigations

Who to investigate for bronchiectasis

Which children should be investigated for bronchiectasis?
Which adults should be investigated for bronchiectasis?

Clinical presentation of bronchiectasis

What are the symptoms and signs of bronchiectasis in children?
What symptoms and signs should be assessed in an adult with bronchiectasis?

Investigations directed at underlying cause

Why should the underlying cause of bronchiectasis be established?
What blood tests should be performed?
What immunological tests should be done on all patients?
What are the second-line immunological investigations and when should they be performed?
When should patients have gastrointestinal investigations?
When should patients have investigations to exclude CF?
When should patients have tests of ciliary function? What are the best tests to identify ciliary defects?
What are the indications for bronchoscopy?

Radiological investigations

What are the important modalities for imaging bronchiectasis?
What is the role of chest x-ray?
What is the role of HRCT?
What is an optimum HRCT protocol for defining bronchiectasis?
What are the HRCT features of bronchiectasis?
Can HRCT identify features of specific causes?
How are HRCT changes related to lung function?
How often should radiological investigations be repeated?
Radiology in children
What scoring systems should be used for research?

Sputum microbiology

Which organisms are isolated from the lower respiratory tract in bronchiectasis?
How and when should standard microbiology be performed? At what interval should it be repeated?
When should specimens be sent for mycobacterial culture?

Lung function tests

- Which lung function tests should be performed in children?
- Which lung function tests should be performed in adults?
- Is there a role for exercise testing in bronchiectasis?
- Can lung function tests be used to assess response to antibiotic treatment?

i26 Section 4: Management: principles and general approach

- General approach and treatment of the specific underlying cause
- Education
- Disease monitoring
- Role of primary care
- Role of nurses
- Multidisciplinary teamworking

Physiotherapy: airway clearance techniques and exercise

- Which patients should be taught airway clearance techniques?
- Which airway clearance technique(s) should be taught?
- Active cycle of breathing techniques
- Manual techniques
- Positive expiratory pressure (PEP)
- Oscillating PEP
- Autogenic Drainage
- Test of Incremental Respiratory Endurance/ Resistive inspiratory manoeuvres
- High-frequency Chest Wall Oscillation
- Are adjuncts to airway clearance techniques useful?
- How often should patients carry out airway clearance techniques? How long should an airway clearance session last?
- How soon should the patient be reviewed after the initial assessment?
- What is the role of exercise?

Airway pharmacotherapy

- Are mucolytics and hyperosmolar agents of benefit in the long term to patients with bronchiectasis?
- Are bronchodilators of use in bronchiectasis?
- Are inhaled corticosteroids a useful treatment for bronchiectasis?

Are oral steroids indicated in the treatment of bronchiectasis?

Leukotriene receptor antagonists and other anti-inflammatory agents

i33 Section 5: Management: antibiotic therapy**Defining and managing exacerbations**

- Definition of an exacerbation requiring antibiotic therapy
- Managing patients with exacerbations

Use of antibiotics

- Which antibiotic regimen is recommended for exacerbations?
- When are combination (dual) antibiotic regimes required?
- Do long-term oral antibiotics influence long-term outcome?
- Do long-term nebulised antibiotics influence long-term outcome?
- Are rotational antibiotics recommended?
- Should an attempt be made to eradicate organisms from the lower respiratory tract?
- When should opportunist mycobacteria be treated?

Antibiotic resistance

- What is the impact of long-term antibiotics on antibiotic resistance?
- Is there clinical relevance of in vitro antibiotic resistance patterns?

i39 Section 6: Surgery, complications of bronchiectasis and management of advanced disease

- Surgery for bronchiectasis
- Massive haemoptysis
- Non-invasive ventilation (NIV)
- Lung transplantation
- Oxygen therapy

i40 Reference list**i48 Appendix 1 Nebulised and intravenous antibiotics: a practical guide to administration****Nebulised antibiotics**

- How do you assess a patient for nebulised antibiotics?
- How do you ensure effective delivery of nebulised antibiotic therapy?
- What nebuliser equipment should be used for nebulising antibiotics?

How do you reconstitute antibiotics for nebulisation?

How should the nebuliser equipment be cleaned and maintained?

Do nebulised antibiotics pose a health risk to staff or relatives?

What advice should be given to patients about nebulised antibiotics?

Intravenous antibiotics

When should home intravenous therapy be considered?

Where should the first dose of intravenous antibiotics be administered?

How should drugs be administered?

How should aminoglycosides be used in adults?

What can be done if venous access is poor?

Table All(B): Long-term oral antibiotic treatments for children and adults chronically colonised with *Pseudomonas aeruginosa*

Table AllI: Causes of bronchiectasis

Table AllV: Studies of lower respiratory tract microbiology in patients with bronchiectasis

Table AllV: Antibiotic studies for exacerbations treated in hospital: adults

Table AllV(A): Oral antibiotic studies used in stable bronchiectasis—adults

Table AllV(B): Oral antibiotic studies used in stable bronchiectasis—children

Table AllV(A): Studies of nebulised antibiotics in patients with stable bronchiectasis—adults

Table AllV(B): Studies of nebulised antibiotics in patients with stable bronchiectasis—children

Table AllV: Nebulised antibiotics

i51 Appendix 2 Tables

Table All(A): Common organisms associated with acute exacerbation of bronchiectasis and suggested antimicrobial agents—adults

Table All(B): Common organisms associated with acute exacerbation of bronchiectasis and suggested antimicrobial agents—children

Table All(A): Long term oral antibiotic treatments—adults

i58 Appendix 3 Audit criteria and research questions

Audit criteria

Research questions

i58 Appendix 4 Contributors

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Contacts