SOCIEDAD ARGENTINA DE PEDIATRÍA
8° CONGRESO ARGENTINO DE NEUMONOLOGÍA INFANTIL

¿QUÉ HAY DE NUEVO EN EL TRATAMIENTO DE LAS BRONQUIECTASIAS NO FQ? (BQ-NO FIBROSIS QUÍSTICA)

DRA. ELIZABETH BUJEDO
ESPECIALISTA EN NEUMONOLOGÍA INFANTIL
HOSPITAL DE NIÑOS SANTÍSIMA TRINIDAD CÓRDOBA

BRONQUIECTASIAS NO-FQ

DIAGNÓSTICO PRECOZ Y MANEJO ADECUADO

DETENER LA PROGRESIÓN DE LA ENFERMEDAD
(prevención y tratamiento de las exacerbaciones)

MANEJO DE PACIENTES PEDIÁTRICOS CON BRONQUIECTASIAS NO-FQ

1. Tratar la causa cuando sea posible
2. Facilitar el drenaje de las secreciones
3. Estado nutricional óptimo
4. Prevención con Vacunas
5. Control del medio ambiente
6. Promover actividad física
7. Tratamiento quirúrgico
8. **Tratamiento de exacerbaciones (antibióticos)**
9. **Tratamiento crónico**

MANEJO GENERAL

PREVENCIÓN PARA NEUMOCOCO (ARGENTINA 2017-2018)

INDICACIONES, ESQUEMAS DE VACUNACIÓN Y VÍAS DE ADMINISTRACIÓN (TABLA 3)

Tabla 3. Población objetivo y esquemas de vacunación en mayores de 5 años

Población objetivo	Esquemas de vacunación
Inmunocomprometidos • Inmunodeficiencias congénitas o adquiridas • Infección por VIH • Insuficiencia renal crónica • Síndrome nefrótico • Leucemia , Linfoma y enfermedad de Hodgkin • Enfermedades neoplásicas • Inmunodepresión farmacológica • Trasplante de órgano sólido • Mieloma múltiple • Asplenia funcional o anatómica (1) • Anemia de células falciformes • Implante coclear • Fístula de LCR	*1º dosis:* VCN13. *2º dosis:* VPN23 con un intervalo mínimo de **8 semanas** luego de la VCN13. *1º refuerzo:* VPN23 a los 5 años de la dosis anterior de VPN23. *2º refuerzo:* VPN23 a los 65 años (si el 1º refuerzo fue administrado antes de los 60 años).
No inmunocomprometidos • Cardiopatía crónica • Enfermedad pulmonar crónica • Diabetes mellitus • Alcoholismo • Enfermedad hepática crónica • Tabaquismo	*1º dosis:* VCN13. *2º dosis:* VPN23 con un intervalo mínimo de **12 meses** luego de la VCN13. *1º refuerzo:* VPN23 a los 65 años (respetando intervalo mínimo de 5 años de la dosis anterior).

Esquema secuencial

FISIOTERAPIA RESPIRATORIA

- El objetivo de la rehabilitación respiratoria:
  - Favorecer la movilización de secreciones
  - Mejorar la capacidad ventilatoria
  - Mejorar la tolerancia al ejercicio
  - Reducir la disnea y mejorar la calidad de vida.
- Consiste en:
  - Técnicas de respiración y expectoración, aparatos de oscilación bronquial, flutter , acapella, chalecos,etc
  - Actividad física

C. BRONCODILATADORES EN BQ-NOFQ

- Facilitan el manejo de las secreciones y la motilidad ciliar
- Se recomienda evaluar la reversibilidad de la obstrucción (HRB)
- Utilizar previo a la realización de fisioterapia y uso de antibióticos inhalados para prevenir un probable broncoespasmo

TRATAMIENTO EN EXACERBACIÓN

Thoracic Society of Australia and New Zealand guidelines

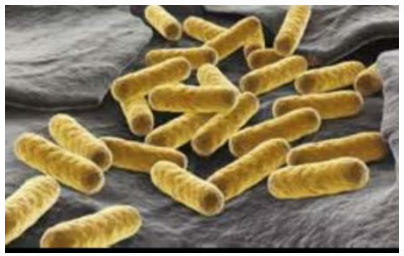
Chronic suppurative lung disease and bronchiectasis in children and adults in Australia and New Zealand

Guidelines on managing chronic suppurative lung disease (CSLD) and bronchiectasis (unrelated to cystic fibrosis [CF]) in Australian Indigenous children initiated in 2002[1] were extended to include Indigenous adults in 2008[2] and children and adults living in urban areas of Australia and New Zealand in 2010.[3] Here, we present an updated guideline relevant for all sections of the community. The recommendations in this guideline are targeted principally to primary and secondary care, and are not intended for individualised specialist care. As with all guidelines, they are not a substitute for sound clinical judgement, particularly when investigating and treating such a phenotypically heterogeneous condition as bronchiectasis.[4]

2015

7	Aim to optimise general wellbeing, symptom control, lung function and quality of life, and to reduce exacerbation frequency and prevent excessive decline in lung function. This may require intensive medical therapy.	Strong	High
8	Develop treatment plans for exacerbations for each patient, linking them to primary health care and specialist or hospital facilities. When appropriate, this includes individualised and self-initiated management action plans.	Strong	Low
9	Base antibiotic selection on lower airway culture results (sputum, bronchoscopy washings [adults and older children] or bronchoalveolar lavage [young non-expectorating children]) when available, local antibiotic susceptibility patterns, clinical severity and patient tolerance, including allergy (Appendix).	Strong	Moderate
10	When *P. aeruginosa* is first detected, consider discussion with a specialist in this field regarding suitability for eradication treatment.	Weak	Low
11	In patients not requiring parenteral antibiotics for an acute exacerbation, oral antibiotics are prescribed for at least 10 days based on available airway microbiology results. Close follow-up to assess treatment response is necessary.	Strong	Low
12	Inadequate response should prompt repeat of lower airway cultures and assessment of whether parenteral antibiotic therapy and hospitalisation are needed.	Strong	Moderate
13	Patients in whom oral antibiotic therapy for an acute exacerbation fails should receive intensive airway clearance strategies and parenteral antibiotics based on the latest lower airway culture results. Close follow-up is required. a. In children, this requires supervised treatment for at least 10–14 days. b. In adults, intravenous antibiotics should be administered for at least 5 days and often need to be followed by oral antibiotics. Conversion from intravenous to oral antibiotics depends on appropriate oral alternatives and whether effective adjunct therapies, such as airway clearance strategies, can be maintained in an ambulatory care setting and with ongoing outpatient review.	Strong	Moderate
14	Long-term oral antibiotics should not be prescribed routinely. Macrolides (or other antibiotics) can be considered for a therapeutic trial over a limited period (eg, up to 12–24 months) in selected patients (eg, those with frequent exacerbations [≥3 exacerbations and/or ≥2 hospitalisations in the previous 12 months]). Before commencing macrolide antibiotics: ■ seek respiratory/infectious diseases specialist advice; ■ ensure non-tuberculous mycobacteria infection is excluded in patients capable of providing a sputum specimen; ■ perform electrocardiography in adults for assessment of QT interval corrected for heart rate.	Strong	Moderate
15	Long-term nebulised antibiotics should not be prescribed routinely. Consider a therapeutic trial in children and adults with frequent exacerbations and/or *P. aeruginosa* infection.	Strong	Moderate

DEFINICIÓN DE EXACERBACIÓN.



- Empeoramiento de los síntomas basales (>72 horas).
- Se caracteriza por:
  - **Aumento de las tos y secreciones**
  - **Alteración de las secreciones, consistencia, viscosidad**
  - Aumento de la disnea y /o sibilancias
  - Hemoptisis
  - Alteración del estado general (fiebre, fatiga)
  - **Factores de riesgo** :1) edad < 3 años .2)exacerbaciones previas .3)internación por exacerbación

Kapur N, Masters IB, Chang AB. Exacerbations in noncystic fibrosis bronchiectasis : clinical features and investigations. Respir Med (2009) 103(11):1681–7.10.1016/j.rmed.2009.05.007

EXACERBACION

Se evaluaron 30 pacientes pediátricos con 116 exacerbaciones

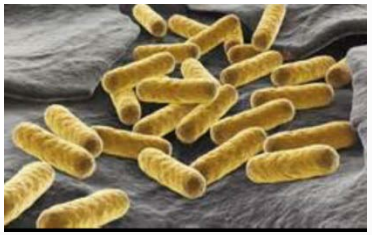
- Aumento frecuencia tos 88%
- Tos húmeda 67%

- Factores de riesgo para exacerbación :
- Edad < 3 años . Exacerbaciones previas (internaciones en el último año).

- ⇩ FEV_1 1.95 % con cada exacerbación

- Kapur N, Masters IB, Chang AB. Exacerbations in noncystic fibrosis bronchiectasis: clinical features and investigations. Respir Med (2009) 103(11):1681–7.10.1016/j.rmed.2009.05.007

EXACERBACIONES. TRATAMIENTO ANTIBIÓTICO

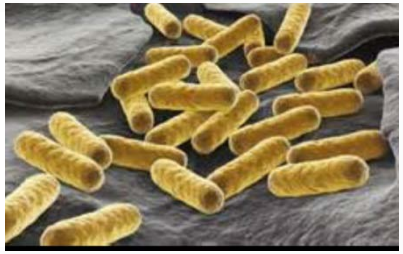


El tratamiento precoz con antibiótico:

- 1) Reduce los síntomas
- 2)Previene las recurrencias
- 3)Preserva la función pulmonar
- 4)Mejora la calidad de vida

Bastardo CM, Sonnappa S, Stanojevic S, Navarro A, Lopez PM, Jaffe A, Bush A. Non-cystic fibrosis bronchiectasis in childhood: longitudinal growth and lung function. Thorax. 2009;64:246-51.

EXACERBACIONES. TRATAMIENTO ANTIBIÓTICO



EMPÍRICO INICIAL (H.influenzae, S.pneumoniae y M.catarrhalis)(1)

- Amoxicillina-ácido clavulánico VO (80 mg/k/d) (leves-ambulatoria)
- Cefalosporina 2da o 3ra generación EV (graves)
- Duración: 2 semanas (hasta 4 semanas)

- Se recomiendan tratamiento antibiótico en todas las exacerbaciones significativas, **incluso aquéllas con un desencadenante viral (2).**

1.Grimwood K, Bell SC, Chang AB. Antimicrobial treatmentof non-cystic fibrosis bronchiectasis Expert Rev. Anti Infect Ther. 2014;12:1277–96.

2. Kapur N, Mackay IM , et al .Respiratory viruses in exacerbation of non-cystic fibrosis bronchiectasis in children. Arch Dis Child. 2014;99:749-53

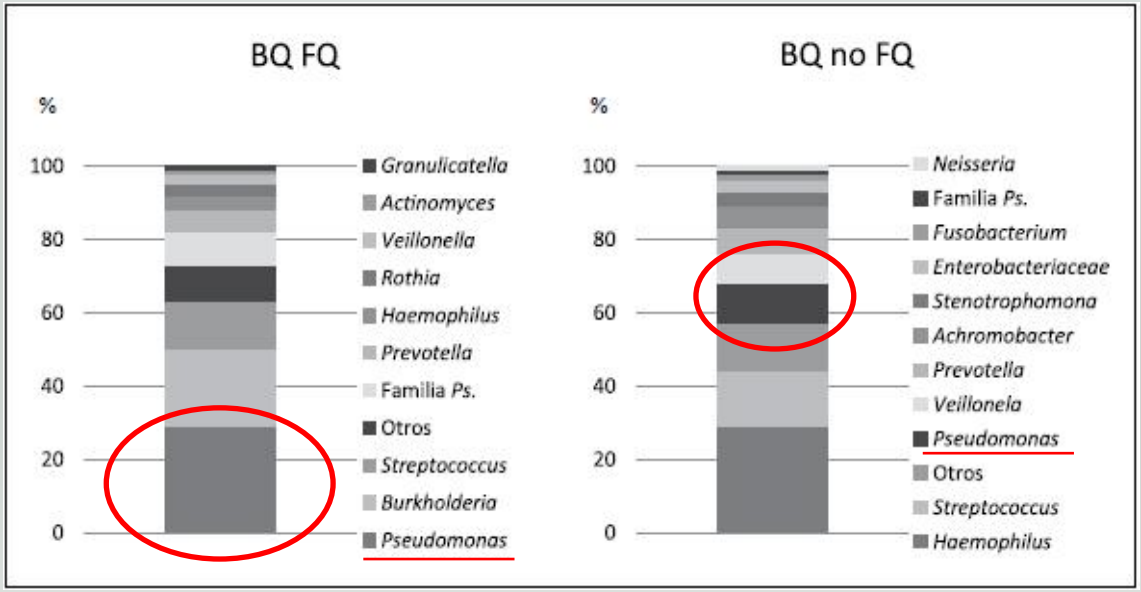
Bacteria pathogens associated with bronchiectasis in children.

Reference	Number	Setting	Age (years)	Specimen	*Haemoph. influenza*(%)	*Streptoc. pneumonia*(%)	*Moraxella catarrhalis*(%)	*Pseudomonas aeruginosa*(%)	*Staphylococcus aureus* (%)
Edwards et al. (2)	*n* = 60	New Zealand	1–17 (md 10)	Sputum	55 (NTHi)	10	5	2	0
Eastham et al. (71)	*n* = 93	United Kingdom	1.6–18.8 (md 7.2)	Various[a]	48	22	17	6	8
Karadag et al. (73)	*n* = 111	Turkey	1–17.5 (md 7.4)	Sputum	39	23	6	11	17
Li et al. (74)	*n* = 136	United Kingdom	3–18 (md 12.1)	Various[a]	39	17	2	11	4
Banjar (70, 120)	*n* = 151	Saudi Arabia	7.3 ± 4.1 (mean ± SD)	NP swab, sputum	37	17	9	16	

Bronchiectasis in Children: Current Concepts in Immunology and Microbiology. Front. Pediatr 2017

EXACERBACIÓN. BACTERIOLOGÍA

- Monitorizar la microbiología del **esputo** ayuda a guiar el tratamiento antimicrobiano en las exacerbaciones.
- **No se recomienda tratamiento empírico para pseudomona** sin infección previa o colonización



TRATAMIENTO CRÓNICO

TRATAMIENTO CRONICO. ANTIBIOTICO

Sólo se recomienda:

- Exacerbaciones **frecuentes (>3/año) o enfermedad grave**
- Erradicación de **P. aeruginosa** (primer aislamiento)
- Colonizados por **S. Aureus meticilino-resistente** (SAMR).

- Pasteur MC, Bilton D, Hill AT, on behalf of the British Thoracic Society Bronchiectasis (non-CF) Guideline Group. British Thoracic Society guideline for non-CF bronchiectasis. Thorax. 2010;65:i1-i58.
- The Saudi Thoracic Society guidelines for diagnosis and management of noncystic fibrosis bronchiectasis. 2017

TRATAMIENTO CRÓNICO. ANTIBIÓTICO

Puntos a tener en cuenta :

1) Identificar causas asociadas a BQ
2) Depurar vía aérea
3) Ver patógenos del esputo
4) Monitorear resistencia bacterianas
5)Identificar organismos emergentes
6) Evaluar toxicidad de los fármacos

A. MACRÓLIDOS EN BQ-NFQ (NIÑOS)

- Las Guías: **recomiendan** su uso solo en exacerbaciones frecuentes (> de 3/año). Durante 12-24 meses
- **No se recomienda:** En pacientes con evidencia de infección con mycobacterias atípicas

- Pacientes con QTc prolongado o trastornos de audicion. (riesgo aumentado aunque bajo de aumento del QTc en el ECG y de disminución de la audición asociados al tratamiento con azitromicina).

Li H, Liu DH, Chen LL, et al. Meta-analysis of the adverse effects of long-term azithromycin use in patients with chronic lung diseases. Antimicrob Agents Chemother. 2014;58:511-17.

Cochrane Library

Cochrane Database of Systematic Reviews

2018

Macrolide antibiotics for bronchiectasis (Review)

Kelly C, Chalmers JD, Crossingham I, Relph N, Felix LM, Evans DJ, Milan SJ, Spencer S

Objectives

To determine the impact of macrolide antibiotics in the treatment of adults and children with bronchiectasis.

Figure 2. Global distribution of studies.

Solo 4/18 estudios pediátricos con 190 pacientes (81 varones 98 mujeres; <18 años).

Cochrane Library

Cochrane Database of Systematic Reviews

Macrolide antibiotics for bronchiectasis (Review)

Kelly C, Chalmers JD, Crossingham I, Relph N, Felix LM, Evans DJ, Milan SJ, Spencer S

Conclusiones : Se redujeron las exacerbaciones y los portadores de H.influenzae y M.catharralis, pero aumentaron las bacterias resistentes a macrólidos.

Macrolides compared with placebo for children with bronchiectasis

Patient or population: children with bronchiectasis
Setting: outpatient clinics in Australia, New Zealand, and South Africa
Intervention: macrolides
Comparison: placebo

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with placebo	Risk with macrolides				
≥ 1 exacerbation Follow-up: 24 months	909 per 1000	800 per 1000 (524 to 934)	OR 0.40 (0.11 to 1.41)	89 (1 RCT)	⊕⊕◯◯ LOW[a,b]	Azithromycin (30 mg/kg/week for 24 months)
Hospitalisation: all-cause Follow-up: 24 months	205 per 1000	67 per 1000 (18 to 222)	OR 0.28 (0.07 to 1.11)	89 (1 RCT)	⊕⊕◯◯ LOW[a,b]	Azithromycin (30 mg/kg/week for 24 months)
Serious adverse events Follow-up: 24 months	432 per 1000	246 per 1000 (114 to 444)	OR 0.43 (0.17 to 1.05)	89 (1 RCT)	⊕⊕◯◯ LOW[a,b]	Azithromycin (30 mg/kg/week for 24 months)
Mortality	1 child died but study group was not stated.		-	42 (1 RCT)	⊕⊕◯◯ LOW[c,d]	Erythromycin (875 to 1750 mg/kg/week for 52 weeks)
Quality of life not reported	-	-	-	-	-	

***The risk in the intervention group** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: confidence interval; OR: odds ratio; RCT: randomised controlled trial; RR: risk ratio

Thoracic Society of Australia and New Zealand guidelines

Chronic suppurative lung disease and bronchiectasis in children and adults in Australia and New Zealand

Guidelines on managing chronic suppurative lung disease (CSLD) and bronchiectasis (unrelated to cystic fibrosis [CF]) in Australian Indigenous children initiated in 2002[1] were extended to include Indigenous adults in 2008[2] and children and adults living in urban areas of Australia and New Zealand in 2010.[3] Here, we present an updated guideline relevant for all sections of the community. The recommendations in this guideline are targeted principally to primary and secondary care, and are not intended for individualised specialist care. As with all guidelines, they are not a substitute for sound clinical judgement, particularly when investigating and treating such a phenotypically heterogeneous condition as bronchiectasis.[4]

2015

7	Aim to optimise general wellbeing, symptom control, lung function and quality of life, and to reduce exacerbation frequency and prevent excessive decline in lung function. This may require intensive medical therapy.	Strong	High
8	Develop treatment plans for exacerbations for each patient, linking them to primary health care and specialist or hospital facilities. When appropriate, this includes individualised and self-initiated management action plans.	Strong	Low
9	Base antibiotic selection on lower airway culture results (sputum, bronchoscopy washings [adults and older children] or bronchoalveolar lavage [young non-expectorating children]) when available, local antibiotic susceptibility patterns, clinical severity and patient tolerance, including allergy (Appendix).	Strong	Moderate
10	When *P. aeruginosa* is first detected, consider discussion with a specialist in this field regarding suitability for eradication treatment.	Weak	Low
11	In patients not requiring parenteral antibiotics for an acute exacerbation, oral antibiotics are prescribed for at least 10 days based on available airway microbiology results. Close follow-up to assess treatment response is necessary.	Strong	Low
12	Inadequate response should prompt repeat of lower airway cultures and assessment of whether parenteral antibiotic therapy and hospitalisation are needed.	Strong	Moderate
13	Patients in whom oral antibiotic therapy for an acute exacerbation fails should receive intensive airway clearance strategies and parenteral antibiotics based on the latest lower airway culture results. Close follow-up is required. a. In children, this requires supervised treatment for at least 10–14 days. b. In adults, intravenous antibiotics should be administered for at least 5 days and often need to be followed by oral antibiotics. Conversion from intravenous to oral antibiotics depends on appropriate oral alternatives and whether effective adjunct therapies, such as airway clearance strategies, can be maintained in an ambulatory care setting and with ongoing outpatient review.	Strong	Moderate
14	Long-term oral antibiotics should not be prescribed routinely. Macrolides (or other antibiotics) can be considered for a therapeutic trial over a limited period (eg, up to 12–24 months) in selected patients (eg, those with frequent exacerbations [≥3 exacerbations and/or ≥2 hospitalisations in the previous 12 months]). Before commencing macrolide antibiotics: ■ seek respiratory/infectious diseases specialist advice; ■ ensure non-tuberculous mycobacteria infection is excluded in patients capable of providing a sputum specimen; ■ perform electrocardiography in adults for assessment of QT interval corrected for heart rate.	Strong	Moderate
15	Long-term nebulised antibiotics should not be prescribed routinely. Consider a therapeutic trial in children and adults with frequent exacerbations and/or *P. aeruginosa* infection.	Strong	Moderate

THE SAUDI THORACIC SOCIETY GUIDELINES FOR DIAGNOSIS AND MANAGEMENT OF NONCYSTIC FIBROSIS BRONCHIECTASIS 2017

GUIDELINES

Year : 2017 | **Volume** : 12 | **Issue** : 3 | **Page** : 135-161

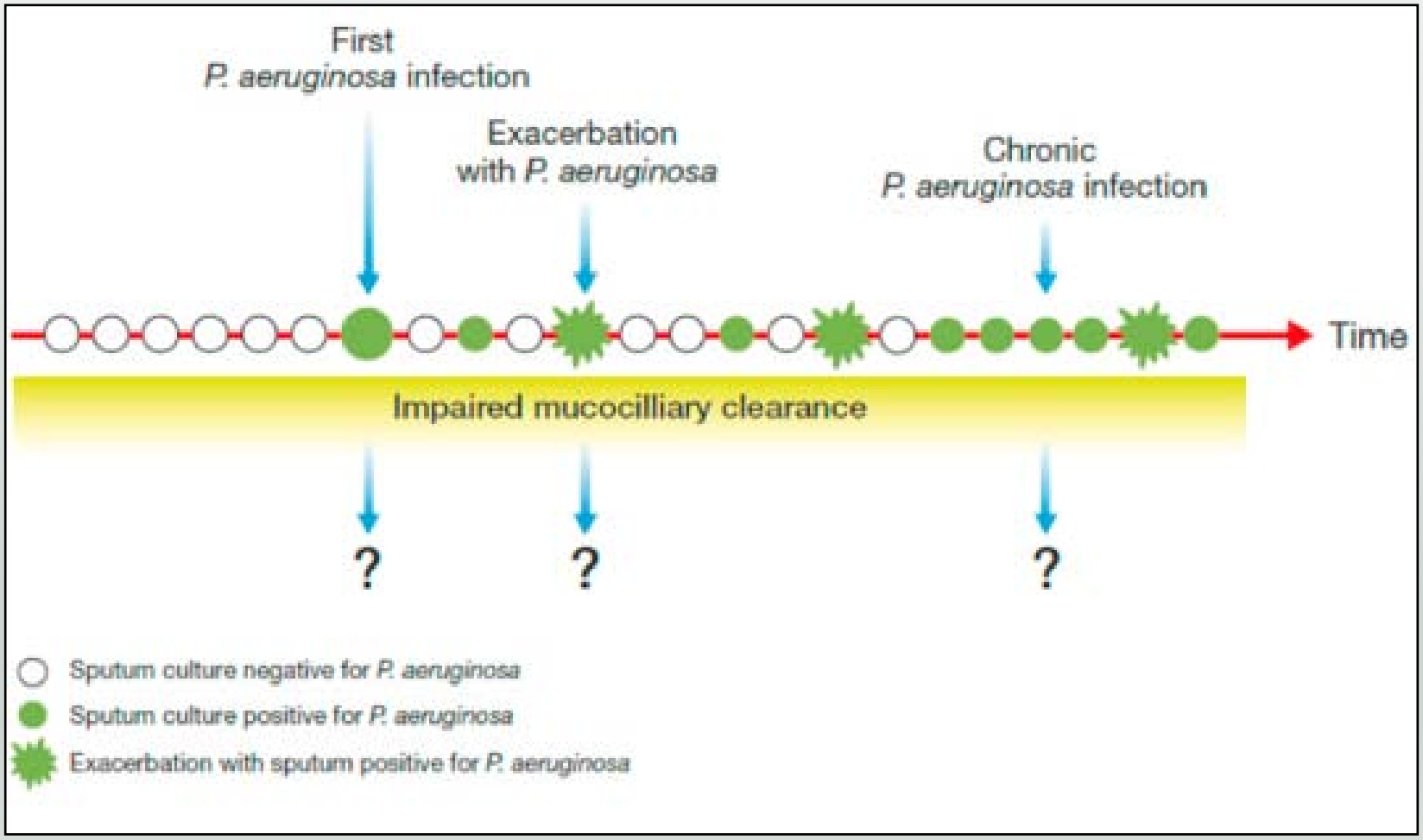
The Saudi Thoracic Society guidelines for diagnosis and management of noncystic fibrosis bronchiectasis

Hamdan Al-Jahdali[1], Abdullah Alshimemeri[1], Abdullah Mobeireek[2], Amr S Albanna[3], Nehad N Al Shirawi[4], Siraj Wali[5], Khaled Alkattan[6], Abdulrahman A Alrajhi[7], Khalid Mobaireek[8], Hassan S Alorainy[9], Mohamed S Al-Hajjaj[10], Anne B Chang[11], Stefano Aliberti[12]

- Evidence Category A: Randomized controlled trials (RCTs) with a rich body of data or meta-analysis from RCTs
- Evidence Category B: RCTs with a limited body of data or meta-analysis from non-RCTs
- Evidence Category C: Non-randomized trials and observational studies
- Evidence Category D: Panel consensus agreement. This category is only used in cases where the provision of some guidance was deemed valuable, but the clinical literature addressing the subject was insufficient to justify placement in one of the other categories.

- Long-term antibiotics (rotational or continuous) should be guided by sputum culture results and considered in patients with three or more exacerbations and/or two hospitalizations in the previous year causing significant morbidity (D)
- Long-term antibiotics therapy should be assessed for efficacy, development of resistance and side effects frequently, and should not exceed 1 year in duration (D).

INFECCIÓN CON PSEUDOMONA



British Thoracic Society guideline for non-CF bronchiectasis

2010

Good practice points

- Long-term nebulised antibiotics are for children with frequent recurrent exacerbations (or deteriorating bronchiectasis) despite long-term oral antibiotics or if oral antibiotic therapy is not appropriate.
- If a child with chronic *Paeruginosa* meets the criteria for long-term antibiotics, these should be considered; regimens are shown in table AII.
- The choice of antibiotic should be guided by the antibiotic sensitivity results.

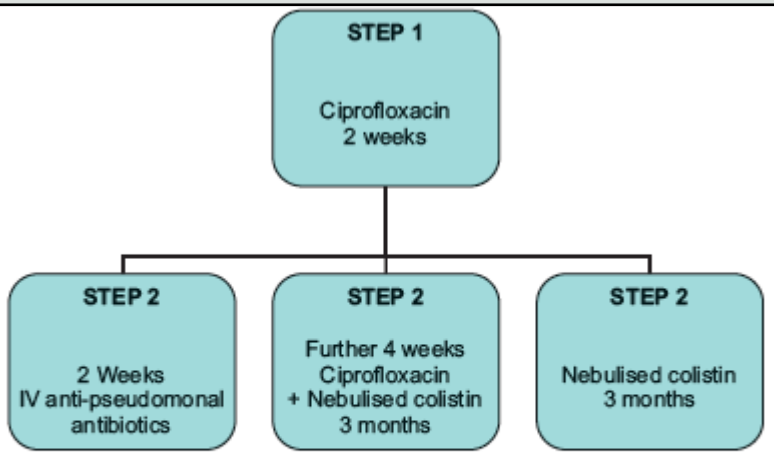


Figure 5 Eradication algorithm for *Pseudomonas aeruginosa* in children. Use doses according to the Children's BNF. Use doses for severe infection.[444] Attempt to eradicate with a 2-week course of oral ciprofloxacin (step 1). If step 1 fails, further regimens may be considered (step 2).

Thoracic Society of Australia and New Zealand guidelines

Chronic suppurative lung disease and bronchiectasis in children and adults in Australia and New Zealand

Guidelines on managing chronic suppurative lung disease (CSLD) and bronchiectasis (unrelated to cystic fibrosis [CF]) in Australian Indigenous children initiated in 2002[1] were extended to include Indigenous adults in 2008[2] and children and adults living in urban areas of Australia and New Zealand in 2010.[3] Here, we present an updated guideline relevant for all sections of the community. The recommendations in this guideline are targeted principally to primary and secondary care, and are not intended for individualised specialist care. As with all guidelines, they are not a substitute for sound clinical judgement, particularly when investigating and treating such a phenotypically heterogeneous condition as bronchiectasis.[4]

2015

7	Aim to optimise general wellbeing, symptom control, lung function and quality of life, and to reduce exacerbation frequency and prevent excessive decline in lung function. This may require intensive medical therapy.	Strong	High
8	Develop treatment plans for exacerbations for each patient, linking them to primary health care and specialist or hospital facilities. When appropriate, this includes individualised and self-initiated management action plans.	Strong	Low
9	Base antibiotic selection on lower airway culture results (sputum, bronchoscopy washings [adults and older children] or bronchoalveolar lavage [young non-expectorating children]) when available, local antibiotic susceptibility patterns, clinical severity and patient tolerance, including allergy (Appendix).	Strong	Moderate
10	When *P. aeruginosa* is first detected, consider discussion with a specialist in this field regarding suitability for eradication treatment.	Weak	Low
11	In patients not requiring parenteral antibiotics for an acute exacerbation, oral antibiotics are prescribed for at least 10 days based on available airway microbiology results. Close follow-up to assess treatment response is necessary.	Strong	Low
12	Inadequate response should prompt repeat of lower airway cultures and assessment of whether parenteral antibiotic therapy and hospitalisation are needed.	Strong	Moderate
13	Patients in whom oral antibiotic therapy for an acute exacerbation fails should receive intensive airway clearance strategies and parenteral antibiotics based on the latest lower airway culture results. Close follow-up is required. a. In children, this requires supervised treatment for at least 10–14 days. b. In adults, intravenous antibiotics should be administered for at least 5 days and often need to be followed by oral antibiotics. Conversion from intravenous to oral antibiotics depends on appropriate oral alternatives and whether effective adjunct therapies, such as airway clearance strategies, can be maintained in an ambulatory care setting and with ongoing outpatient review.	Strong	Moderate
14	Long-term oral antibiotics should not be prescribed routinely. Macrolides (or other antibiotics) can be considered for a therapeutic trial over a limited period (eg, up to 12–24 months) in selected patients (eg, those with frequent exacerbations [≥3 exacerbations and/or ≥2 hospitalisations in the previous 12 months]). Before commencing macrolide antibiotics: ▪ seek respiratory/infectious diseases specialist advice; ▪ ensure non-tuberculous mycobacteria infection is excluded in patients capable of providing a sputum specimen; ▪ perform electrocardiography in adults for assessment of QT interval corrected for heart rate.	Strong	Moderate
15	Long-term nebulised antibiotics should not be prescribed routinely. Consider a therapeutic trial in children and adults with frequent exacerbations and/or *P. aeruginosa* infection.	Strong	Moderate

THE SAUDI THORACIC SOCIETY GUIDELINES FOR DIAGNOSIS AND MANAGEMENT OF NONCYSTIC FIBROSIS BRONCHIECTASIS 2017

GUIDELINES

Year : 2017 | **Volume** : 12 | **Issue** : 3 | **Page** : 135-161

The Saudi Thoracic Society guidelines for diagnosis and management of noncystic fibrosis bronchiectasis

Hamdan Al-Jahdali[1], Abdullah Alshimemeri[1], Abdullah Mobeireek[2], Amr S Albanna[3], Nehad N Al Shirawi[4], Siraj Wali[5], Khaled Alkattan[6], Abdulrahman A Alrajhi[7], Khalid Mobaireek[8], Hassan S Alorainy[9], Mohamed S Al-Hajjaj[10], Anne B Chang[11], Stefano Aliberti[12]

we do not recommend routine use of inhaled antibiotics (tobramycin, gentamicin, or colistin) except in very selected cases with chronic *Pseudomonas* colonization and frequent exacerbation and significant morbidity

European Respiratory Society guidelines for the management of adult bronchiectasis

Eva Polverino[1], Pieter C. Goeminne[2,3], Melissa J. McDonnell[4,5,6], Stefano Aliberti[7], Sara E. Marshall[8], Michael R. Loebinger[9], Marlene Murris[10], Rafael Cantón[11], Antoni Torres[12], Katerina Dimakou[13], Anthony De Soyza[14,15], Adam T. Hill[16], Charles S. Haworth[17], Montserrat Vendrell[18], Felix C. Ringshausen[19], Dragan Subotic[20], Robert Wilson[9], Jordi Vilaró[21], Bjorn Stallberg[22], Tobias Welte[19],

2017. Adultos

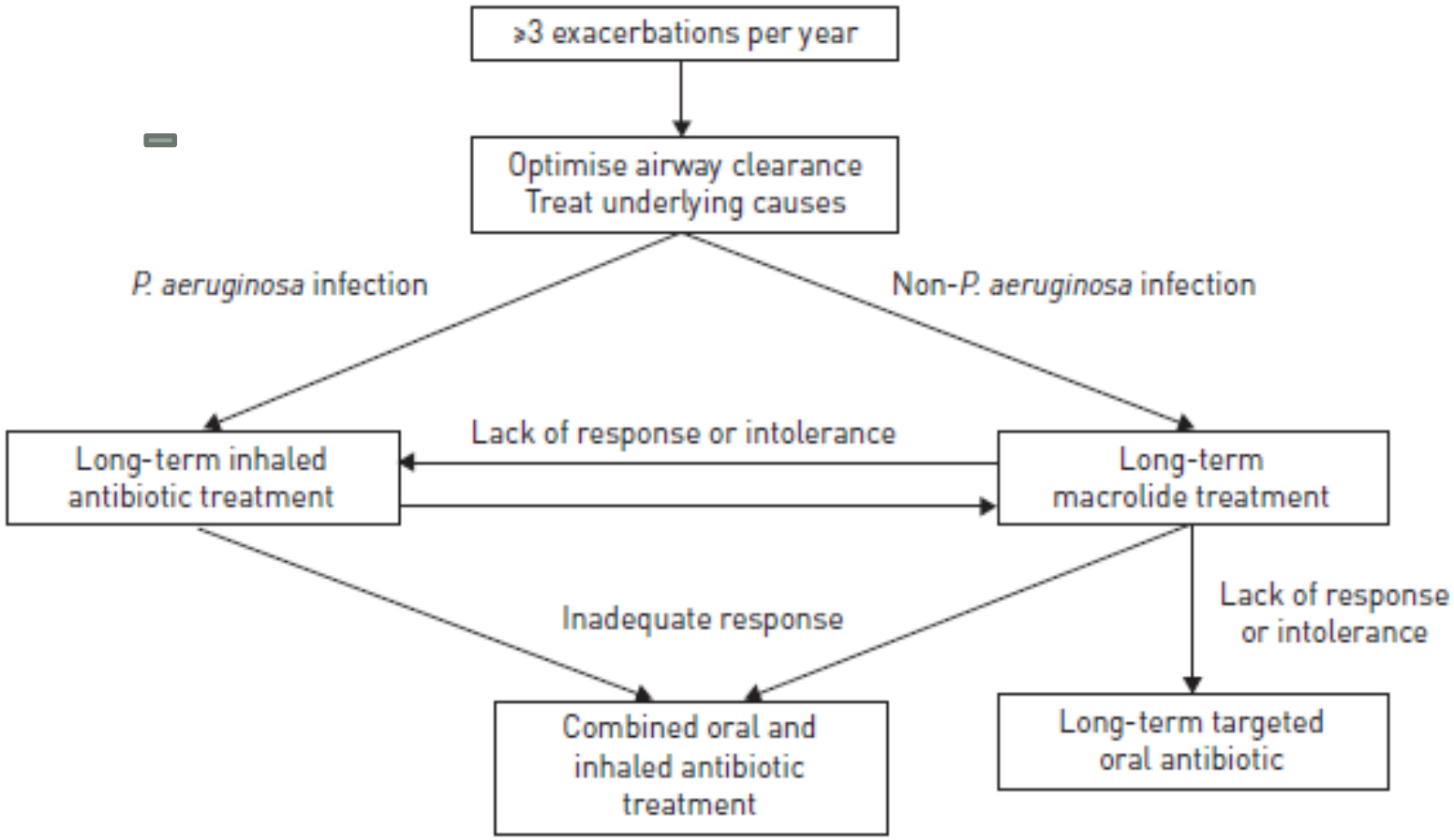


FIGURE 4 Summary of recommendations for long-term antibiotic treatment.

Cochrane Library

Cochrane Database of Systematic Reviews

2018

Oral versus inhaled antibiotics for bronchiectasis (Review)

Spencer S, Felix LM, Milan SJ, Normansell R, Goeminne PC, Chalmers JD, Donovan T

Objectives

To determine the comparative efficacy and safety of oral versus inhaled antibiotics in the treatment of adults and children with bronchiectasis.

Conclusiones:
No hay evidencia concluyente de que la admnistración de antibióticos orales (macrólicos) (prolongado) sean más beneficiosos comparados con los antibióticos inhalados.

Inhaled hyperosmolar agents for bronchiectasis

2014

Anna Hart[1], Karnam Sugumar[2], Stephen J Milan[3], Stephen J Fowler[4,5], Iain Crossingham[6]

[1]Lancaster Medical School, Clinical Research Hub, Lancaster University, Lancaster, UK. [2]Department of Paediatrics, Royal Preston Hospital, Lancashire Teaching Hospitals NHS Trust, Preston, UK. [3]Population Health Sciences and Education, St George's, University of London, London, UK. [4]University of Manchester, NIHR Respiratory and Allergy Clinical Research Facility, University Hospital of South Manchester, Manchester, UK. [5]Lancashire Teaching Hospitals NHS Foundation Trust, Preston, UK. [6]Royal Blackburn Hospital, Blackburn, UK

Contact address: Stephen J Milan, Population Health Sciences and Education, St George's, University of London, London, UK. s.milan@lancaster.ac.uk.

Editorial group: Cochrane Airways Group.
Publication status and date: New search for studies and content updated (conclusions changed), published in Issue 5, 2014.
Review content assessed as up-to-date: 2 April 2014.

Background

Mucus retention in the lungs is a prominent feature of bronchiectasis. The stagnant mucus becomes chronically colonised with bacteria, which elicit a host neutrophilic response. This fails to eliminate the bacteria, and the large concentration of host-derived protease may contribute to the airway damage. The sensation of retained mucus is itself a cause of suffering, and the failure to maintain airway sterility probably contributes to the frequent respiratory infections experienced by many patients.

Hypertonic saline inhalation is known to accelerate tracheobronchial clearance in many conditions, probably by inducing a liquid flux into the airway surface, which alters mucus rheology in a way favourable to mucociliary clearance. Inhaled dry powder mannitol has a similar effect. Such agents are an attractive approach to the problem of mucostasis, and deserve further clinical evaluation.

Objectives

To determine whether inhaled hyperosmolar substances are effective in the treatment of bronchiectasis.

Solución salina hipertónica. Podría reducir el número de exacerbaciones y el consumo de antibióticos, mejorar la función pulmonar y la calidad de vida y disminuir la viscosidad del esputo. Efecto inmunomodulador.

Conclusiones : Manitol: resultados no concluyentes. Estudios recientes muestran mejoría en el tiempo a la siguiente exacerbación y mejoría calidad de vida medido por SGRQ (St. George Respiratory Questionnaire) .

DNasa recombinante: no está recomendada en BQ no FQ.

Thoracic Society of Australia and New Zealand guidelines

Chronic suppurative lung disease and bronchiectasis in children and adults in Australia and New Zealand

Guidelines on managing chronic suppurative lung disease (CSLD) and bronchiectasis (unrelated to cystic fibrosis [CF]) in Australian Indigenous children initiated in 2002[1] were extended to include Indigenous adults in 2008[2] and children and adults living in urban areas of Australia and New Zealand in 2010.[3] Here, we present an updated guideline relevant for all sections of the community. The recommendations in this guideline are targeted principally to primary and secondary care, and are not intended for individualised specialist care. As with all guidelines, they are not a substitute for sound clinical judgement, particularly when investigating and treating such a phenotypically heterogeneous condition as bronchiectasis.[4]

2015

Number	Recommendation	GRADE category	Evidence level
16	Inhaled and oral corticosteroids should not be prescribed routinely unless there is an established diagnosis of coexisting asthma or COPD.	Strong	Low*/ moderate†
17	Inhaled bronchodilators should not be prescribed routinely but used only on an individual basis.	Strong	Low
18	Recombinant human deoxyribonuclease is contraindicated in CSLD and bronchiectasis.	Strong	High
19	Mucoactive agents, including hypertonic saline and mannitol, are currently not recommended for routine use. Consider a therapeutic trial in children and adults with frequent exacerbations.	Weak	Moderate
20	Airway clearance techniques are recommended and a respiratory physiotherapist's advice should be sought. Individualise airway clearance therapy.	Strong	Moderate
21	Adults with bronchiectasis and exercise limitation should receive pulmonary rehabilitation.	Strong	Moderate
22	Regular physical activity is recommended for children and adults with CSLD or bronchiectasis.	Strong	Low
23	Assess and optimise nutritional status.	Strong	Moderate
24	Promote elimination of smoking, including second-hand smoke exposure.	Strong	High
25	Promote avoidance of environmental airborne pollutants.	Strong	Low

Corticoide inhalados en Bronquiectasia no FQ

Format: Abstract

Cochrane Database Syst Rev. 2009 Jan 21;(1):CD000996. doi: 10.1002/14651858.CD000996.pub2.

Inhaled steroids for bronchiectasis.

Kapur N[1], Bell S, Kolbe J, Chang AB.

Author information

Journal of
Clinical Pharmacy and Therapeutics

Withdrawal of inhaled steroids in children with non-cystic fibrosis bronchiectasis

T. Guran MD, R. Ersu MD, B. Karadag MD, F. Karakoc MD, G. Y. Demirel MD, N. Hekim MD, E. Dagli MD

First published: 11 November 2008 | https://doi.org/10.1111/j.1365-2710.2008.00951.x | Cited by:12

TRATAMIENTO QUIRÚRGICO

INDICACIONES DE TRATAMIENTO QUIRÚRGICO

- Proceso limitado con **síntomas graves** que interfiere con el ritmo normal de vida.
- Proceso resecable asociado a **falla de crecimiento**.
- Proceso resecable localizado, con **infecciones agudas a repetición.**
- **Hemorragia peligrosa** procedente de un proceso localizado.

Thorax Online First, published on August 8, 2016 as 10.1136/thoraxjnl-2016-208775

ORIGINAL ARTICLE

FUT2 genotype influences lung function, exacerbation frequency and airway microbiota in non-CF bronchiectasis

Steven L Taylor,[1,2] Richard J Woodman,[3] Alice CH Chen,[4] Lucy D Burr,[5,6] David L Gordon,[7,8] Michael A McGuckin,[5] Steve Wesselingh,[1,2] Geraint B Rogers[1,2]

► Additional material is published online only. To view please visit the journal online (http://dx.doi.org/10.1136/thoraxjnl-2016-208775).

For numbered affiliations see end of article.

Correspondence to
Dr Geraint B Rogers, 5D332, Level 5, Flinders Medical Centre, Flinders Drive, Bedford Park SA 5042, Australia; geraint.rogers@sahmri.com

Received 14 April 2016
Revised 23 June 2016
Accepted 12 July 2016

ABSTRACT

Objective To assess whether *FUT2* (*secretor*) genotype affects disease severity and airway infection in patients with non-cystic fibrosis bronchiectasis.

Participants Induced sputum samples were obtained from 112 adult patients with high-resolution CT scan-proven bronchiectasis and at least two exacerbations in the previous year, as part of an unrelated randomised control trial.

Outcome measures Presence of null *FUT2* polymorphisms were determined by gene sequencing and verified by endobronchial biopsy histochemical staining. Outcome measures were FEV_1% predicted, exacerbation frequency, and bacterial, fungal and viral components of the microbiota (measured by culture

Key messages

What is the key question?

► Does *FUT2* genotype predict disease severity in non-cystic fibrosis bronchiectasis?

What is the bottom line?

► Patients who had non-cystic fibrosis bronchiectasis with a homozygous polymorphism in the *FUT2* gene have higher lung function, lower exacerbation frequency and lower prevalence of *Pseudomonas aeruginosa*-dominated airway infections,

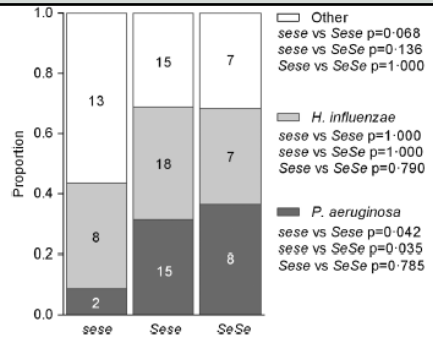


Figure 3 Effect of *FUT2* genotype on predominant airway infection. Proportion of patients who had airway infection dominated by *Pseudomonas aeruginosa*, *Haemophilus influenzae* or any other species. Numbers indicate number of patients. p Values calculated by Fisher's exact test.

Conclusiones :

El fenotipo homocigota secretor FUT2 se asoció a:

- **Mayor número de exacerbaciones**
- **Función pulmonar mas baja**
- **Alta frecuencia de infección con Pseudomona**

CONCLUSIONES

- **El pediatra** tiene un papel fundamental en el **diagnóstico** de bronquiectasias en el niño. Deben sospecharlas ante procesos respiratorios crónicos o recurrentes, **tos productiva > 4 semanas**

- Tratamiento **antibiótico precoz** de las exacerbaciones evita la progresión de la enfermedad y mejora evolución

- El **control integral del paciente** con BQ-NFQ, vacunación y nutrición adecuados, actividad física y cuidados del ambiente pueden mejorar la calidad de vida y el pronóstico de la enfermedad.

SOCIEDAD ARGENTINA DE PEDIATRÍA
8 CONGRESO ARGENTINO DE
NEUMONOLOGÍA INFANTIL

MUCHAS GRACIAS!

DRA. ELIZABETH BUJEDO