

Bronchiectasis A Growing Problem









Conference 2015



Bronchiectasis (in Children)

- What is it?
- Why such a concern in NZ?
- What to look out for?
- Management
- Positives?

Just a note that the bar for diagnosis, referral and management are all set too high before instigated.

NOTE: in online version have removed the Photos of children that were in presented version.



What is it?



G. Localized bronchiectasis. Saccular dilatations of

- Airway damage ٠
- **Mucus retention** •
- **Recurrent infections** ٠
- Damage progresses ۲



What is it?





Diagnosed by Chest CT scan



Clinical Diagnosis

- cough
- mucus
- infections

Don't wait!

Delay in diagnosis

Countries	numbers	Age onset symptoms	Age of Dx
Italy, 2009	105	0.5yrs	7 yrs
Saudi Arabia, 2007	151	3yrs	7.3yrs
NZ, 2005	65	2.3yrs	5.2yrs
Turkey, 2005	111	2.5yrs	7.4yrs
Turkey, 2005	204	2.3yrs	8yrs
UK, 2004	93	1.1yrs	7.2yrs
NZ, 2003	60	lyr	8yrs
Australia, 2003	59	0.5yrs	4.8yrs
Alaska, USA, 2000	46	0.4yrs	4.8yrs

Kapur et al, Paed Resp Rev 2011



NZ Child & Youth Epidemiology Service 2006

Why such a concern in NZ?

In ADULTS (international data)

- 15-30% COPD, chronic bronchitis in primary care
- 29-50% severe COPD
- 40% difficult to control asthma

Gupta S, Chest 2000 Patel IS, AJRCCM 2004 OBrien C, Thorax 2001 Martinez Garcia MA, AJRCCM 2013

One year in South Auckland

- 307 admissions in 152 adults with bronchiectasis
- 46% at least one readmission
- 21% died

Roberts ME, Internal Med J 2012

Why such a concern in NZ? comparative data

At diagnosis	Australia	Alaska	NZ
Bilateral disease	15.3% 50%	38% 57%	83% 87%
Widespread disease			64%

Munro K, Current Paeds 2009

At diagnosis	Australia	Alaska	NZ
Median LRTI	9	15	13 (3-19)
Median LRTI admissions	3	3	6 (0-17)

Singleton R, Ped Pulm 2014

Why such a concern in NZ?

Persisting symptoms:

Children < 2 yrs age admitted with severe LRTI seen one year later at time of 'health'

Trenholme AA , Ped Pulm 2013

94 children: 67% had: chronic cough abnormal exam persisting CXR abnormalities

Our Data	Age Dx	Severity
Pillarisetti 2015	3.2 yrs	84% bilateral, 66% generalised
Twiss 2005	5.2 yrs	83% bilateral, 61% generalised
Edwards 2003	8 yrs	87% bilateral, 83% generalised

Bx Disease Progression



Associations with accelerated decline (FEV1 \downarrow 4.4%):

Female, Maori, low SES, chest deformity or clubbing

Munro et al, Ped Pulm 2011

What to look out for?



Note: although these are the traditional features associated with paediatric bronchiectasis - by the time the children are presenting with these features – they already have significant disease and really it is too late to be recognising it.

Thoracic Society of Australia and New Zealand guidelines

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

> Chang AB, Bell SC, Torzillo PJ, King PT, Maguire GP Byrnes CA, Holland AE, O'Mara P, Grimwood K & extended voting group

Referral in children:

- Wet cough not responding to 4 weeks antibx
- > 3 episodes of cough lasting > 4 weeks
- CXR abnormality persisting > 6 weeks with treatment

What to look out for?

- Cough persistent, recurrent, wet
- Recurrent resp infections
- Hospital admissions for LRTI
- Recurrent antibx use
- School absenteeism
- SOB with sport
- Asthma poorly responsive
- Growth



Don't wait!

Thoracic Society of Australia and New Zealand guidelines

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

Chang AB et al, MJA 2015



Guideline for non-CF Bronchiectasis

British Thoracic Society Bronchiectasis (non-CF) Guideline Group

Pasteur MC et al, 2010

- 1. Antibiotics
- 2. Airway clearance physiotherapy, exercise, mucolytics,
- 3. Environment housing, smoking
- 4. Immunizations
- 5. Nutrition

Azithromycin for prevention of exacerbations in non-cystic fibrosis bronchiectasis (EMBRACE): a randomised, double-blind, placebo-controlled trial

Conroy Wong, Lata Jayaram, Noel Karalus, Tam Eaton, Cecilia Tong, Hans Hockey, David Milne, Wendy Fergusson, Christine Tuffery, Paul Sexton, Louanne Storey, Toni Ashton



- Exacerbations \downarrow 62% over 6 months
- Still \downarrow 42% over 12 months

Long-term azithromycin for Indigenous children with non-cystic-fibrosis bronchiectasis or chronic suppurative lung disease (Bronchiectasis Intervention Study): a multicentre, double-blind, randomised controlled trial

Patricia CValery, Peter S Morris, Catherine A Byrnes, Keith Grimwood, Paul J Torzillo, Paul A Bauert, I Brent Masters, Abbey Diaz, Gabrielle B McCallum, Charmaine Mobberley, Irene Tjhung, Kim M Hare, Robert S Ware, Anne B Chang

RESULTS	AZM vs placebo	
Respiratory Infections	Halved	P<0.0001
Admissions	Decreased by a third	P<0.06
Antibx for other illnesses	Halved	P=0.003
Weight for Age	Increased by a third	P=0.005

Valery PC, Respiratory Lancet 2013

Prolonged antibiotics for non-cystic fibrosis bronchiectasis in

children and adults (Review)



Cochrane Review, Hnin K et al 2014

- 275 fewer exacerbations per 1000 treated
- 50 fewer hospital admission per 1000 treated

Thoracic Society of Australia and New Zealand guidelines

Chronic suppurative lung disease and bronchiectasis in children and adults in Australia and New Zealand 2015



Guideline for non-CF Bronchiectasis

British Thoracic Society Bronchiectasis (non-CF) Guideline Group Trial: those with frequent exacerbations:

- > 3 per year,
- or > 2 hospitalisations per year

2010

Nebulised antibiotics

Studies - range of antibxs, range of duration

Combined results:

- \downarrow bacteria, \downarrow inflammation, longer to next infection
- \uparrow exercise tolerance, \uparrow QoL (some)
- No change in lung function

Lin AMJRCCM 1997 Orriols Resp Med 1999 Barker AJRCCM 2000

Drobnic Ann Pharm 2005 Dhar Thorax 2010 Scheinberg Chest 2005 Bilton Chest 2006

Wilson ERJ 2013 Haworth AJRCCM 2014 Barker Lancet Resp 2014

Nebulised antibiotics

Gentamicin neb 12 months in adults:

- \downarrow bacteria in sputum
- \downarrow hospitalisation
- ↓infections
- ↑ exercise ability

Murray AJRCCM 2011

Gentamicin vs placebo neb 3 months cross over

- \downarrow inflammation
- \downarrow use of other antibiotics

Twiss, ATS 2009



Prevention





Chang, Byrnes, Everard Paed Resp Reviews 2011

Serial CT scan comparison



Kim Michelle Williams & Russell Metcalfe Starship Radiology Service

2003 (14 month female)



2008





THE BRONCHIECTASIS FOUNDATION

To create a place for families, siblings, parents, children and individuals affected by this condition "Bronchiectasis" to seek guidance, resources and initiative to manage their health in the best possible way for "them".



Esther-Jordan Muriwai



Bronchiectasis Foundation Launch 7th April 2015

Courage led to foundation Image: the state of the state o









TE HĀ ORA: THE BREATH OF LIFE

NATIONAL RESPIRATORY STRATEGY RAUTAKI ROMAHĂ Ă-MOTU

