Co-isolement de pathogènes au cours d'une dilatation des bronches

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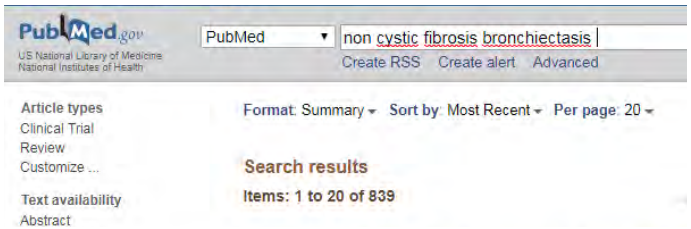
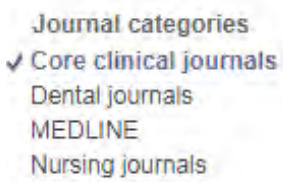
- Données générales
- Coisolement de virus
- Coisolement mixtes
- Coisolement fongiques
- Microbiome

- Prévalence ?
- Impact ?
- Conduite ?
- Conclusions
- Perspectives





non cystic fibrosis bronchiectasis
poly infection co isolation mixed co infection
persistant polymicrobial colonisation multiple
pathogens…

Distribution of Major Pathogens from Sputum and Bronchoalveolar Lavage Fluid in Patients with Noncystic Fibrosis Bronchiectasis: A Systematic Review

Table 3: Weighted mean isolation rates according to the culture technique used in the studies

Pathogens	Sputum	BALF alone or BALF and sputum	*P*
Haemophilus influenzae	*n* = 19	*n* = 12	
Isolation rate (95% *CI*)	0.29 (0.23–0.36)	0.37 (0.29–0.44)	0.172
Pseudomonas aeruginosa	*n* = 19	*n* = 9	
Isolation rate (95% *CI*)	0.28 (0.21–0.34)	0.08 (0.05–0.11)	0.004
Streptococcus pneumoniae	*n* = 14	*n* = 12	
Isolation rate (95% *CI*)	0.11 (0.07–0.14)	0.14 (0.09–0.19)	0.205
Staphylococcus aureus	*n* = 10	*n* = 8	
Isolation rate (95% *CI*)	0.12 (0.07–0.16)	0.05 (0.03–0.06)	0.093
Moxarella catarrhalis	*n* = 13	*n* = 8	
Isolation rate (95% *CI*)	0.08 (0.05–0.11)	0.10 (0.05–0.15)	0.473

P values comparing the pathogen isolation rate for studies that used sputum with studies that used BALF or BALF and sputum, calculated by nonparametric test. BALF: Bronchoalveolar lavage fluid; *n*: Numbers of studies; *CI*: Confidence interval.

Distribution of Major Pathogens from Sputum and Bronchoalveolar Lavage Fluid in Patients with Noncystic Fibrosis Bronchiectasis: A Systematic Review

Xu et al CMJ 2015

Méta-analyse 1996 à 2014

- ***Bronchiectasies non mucoviscidose (bnm)***
- n = 3073 patients
- cultures positives = 65% (2358)

Hétérogénéité

- Conditions prélèvements
- Antibiothérapies…

- H. Influenzae : 29 à 37 %
- P. Aeruginosa : 08 à 28 %
- S. pneumoniae: 11 à 14 %
- S. Aureus : 05 à 12 %
- M. Catarrhalis : 08 à 10 %

Pas de données virales ou fongiques

Pas de données sur Co-isolement

Données générales

Microbiology of non-CF bronchiectasis

Country	Subjects n	Sample	Age yrs	Stable or at exacerbation	*Haemophilus influenzae*	*Pseudomonas aeruginosa*	*Streptococcus pneumoniae*	*Moraxella catarrhalis*	*Staphylococcus aureus*
Ireland	92	Sputum	<18	ND	50 (46)	8 (9)	34 (37)	9 (10)	14 (15)
Thailand	50	Sputum	58 (30–85)	ND	7 (14)	10 (20)	3 (6)	2 (4)	
Spain	75	PSB	58 (16–76)	Stable	24 (32)	12 (16)	6 (8)	3 (4)	2 (3)
USA	123	Sputum	57.2 ± 16.7	ND	37 (30)	38 (31)	13 (11)	3 (2)	9 (7)
Australia	89	Sputum	57 ± 14	Stable	42 (47)	11 (12)	6 (7)	7 (8)	3 (4)
UK	150	Sputum		ND	52 (35)	46 (31)	20 (13)	30 (20)	21 (14)
UK	143	Sputum	60.6 (16–90)	ND	75 (52)	62 (43)	42 (30)	39 (27)	39 (27)
				Colonised subgroup[¶]	47 (33)	47 (33)	13 (9)	9 (6)	15 (10)

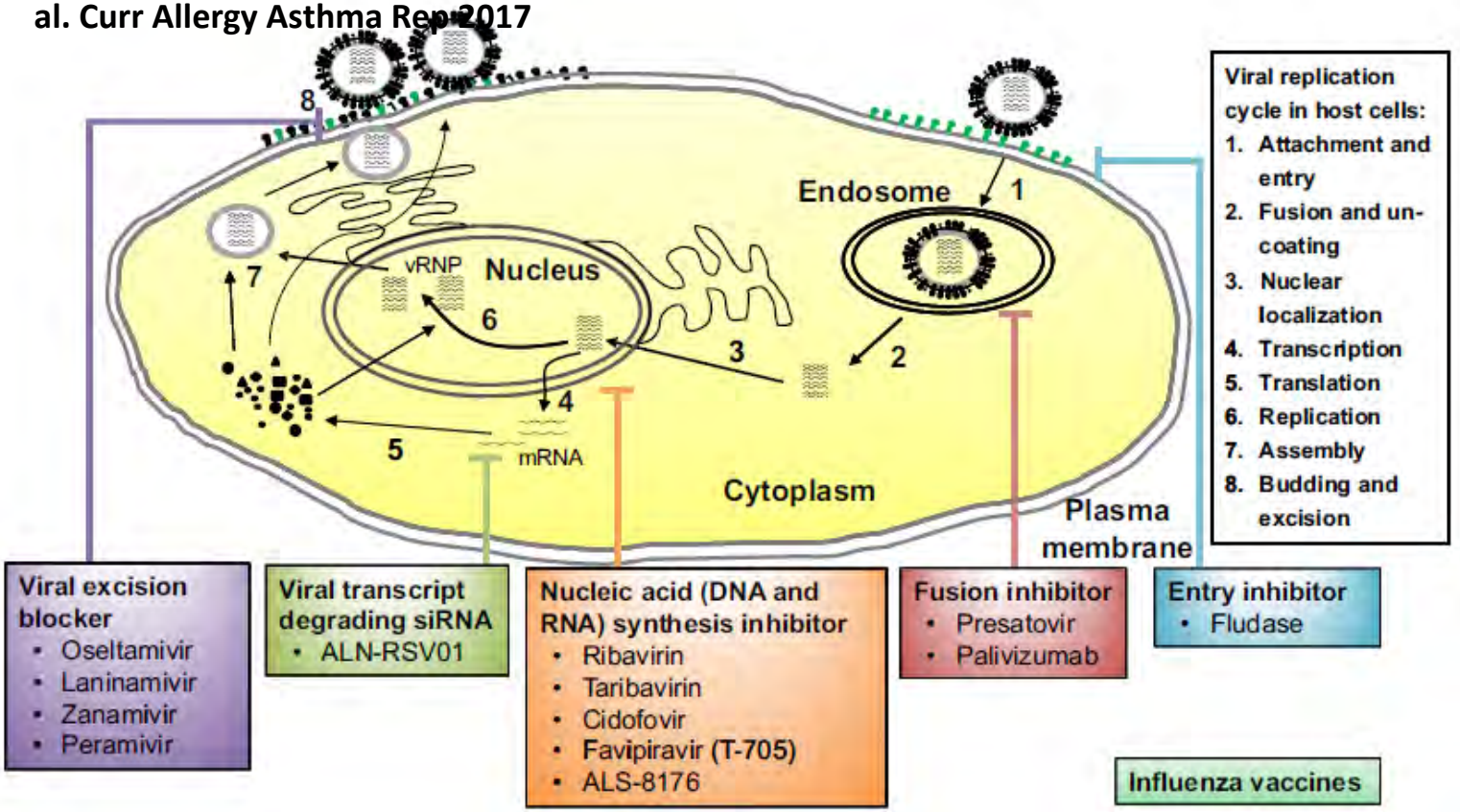
Bronchiectasis: European Respiratory Monograph - R.A. Floto & C.S. Haworth

Foweraker and Wat, ER Monograph 2011

Données générales

Virus, exacerbations et maladies respiratoires chroniques

Current antiviral drugs against respiratory viruses and their mechanisms of action. T an et al. Curr Allergy Asthma Rep 2017



T an et al. Curr Allergy Asthma Rep 2017

Co-isolement de virus

Respiratory viruses in exacerbations of non-cystic fibrosis bronchiectasis in children

- Equipe Australienne, suivi **prospectif**;
- 69 patients de 4 à 11 ans;
- **Exacerbations (critères)**
- Durée médiane de suivi de 13 mois
- **Aspiration nasopharyngé**
- Objectif : **prevalence des infections virales par PCR**
- Données de 77 exacerbations

Kapur N, et al. Arch Dis Child 2014

Co-isolement de virus

Respiratory viruses in exacerbations of non-cystic fibrosis bronchiectasis in children

Table 1 Point prevalence of viruses detected by PCR from nasopharyngeal aspirates in bronchiectasis exacerbation

Virus	Frequency (n=77)	Per cent
Influenza A virus	2	2.5%
Human respiratory syncytial virus	2	2.5%
Human coronavirus	1	1%

*Ascribed to low viral load.

Table 3 Multiple logistic regression for clinical and investigational models

IL-6>2 ng/L	1.3	0.4 to 4.1	0.62

Bold typeface means statistically significant at P<0.5.
CRP, C reactive protein; IL-6, interleukin 6; WCC, white cell count.

- Au moins un virus detecté chez 37 patients (48%)
- *Coisolements chez 6 patients soit 8%*
- *Pas de données bactériennes ou fongiques*
- *Données similaires aux patient CF et BPCO*
- *Conduite particulière co-isolemenbts : ND*

Kapur N, et al. Arch Dis Child 2014

Co-isolement de virus

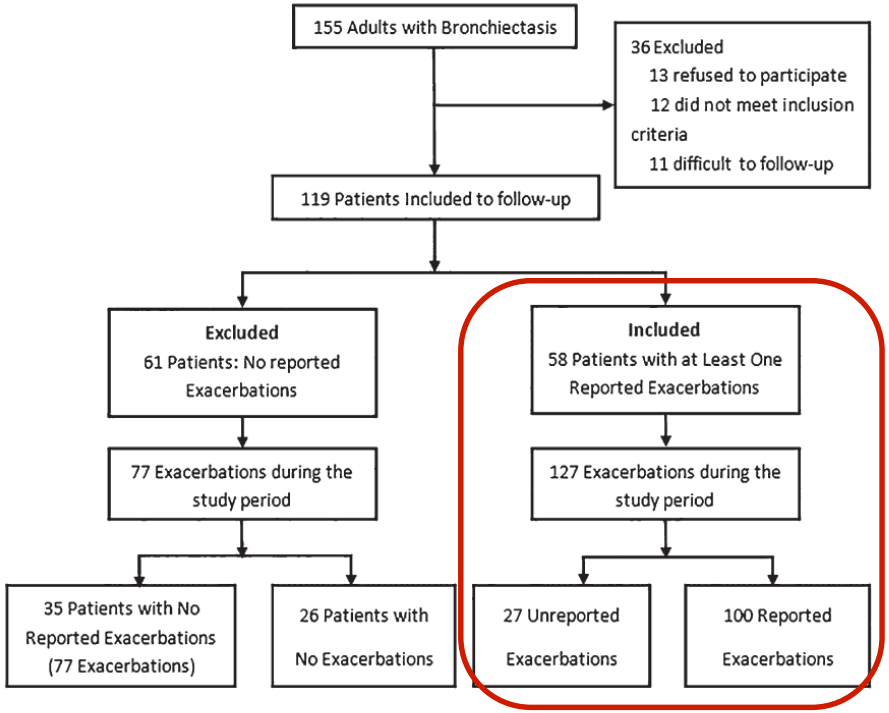
The Role of Viral Infection in Pulmonary Exacerbations of Bronchiectasis in Adults

- Equipe Chinoise, ***suivi prospectif*** de 119 adultes
- Durée de suivie de ***12 mois***
- 58 patients patients avec au moins 1 ***exacerbation***
  - **24 (41.4%) colonisés à PA en baseline**
  - 1 seul patient vaccine
  - DDB idiopathique/post-infectieuse dans 58,6% des cas.
- Cohorte globale (119 patients) = cohort avec Exacerb (58)
- Aspiration ***nasopharyngée et expectoration***
- Objectif : ***prevalence des infections virales par PCR*** (16 virus)

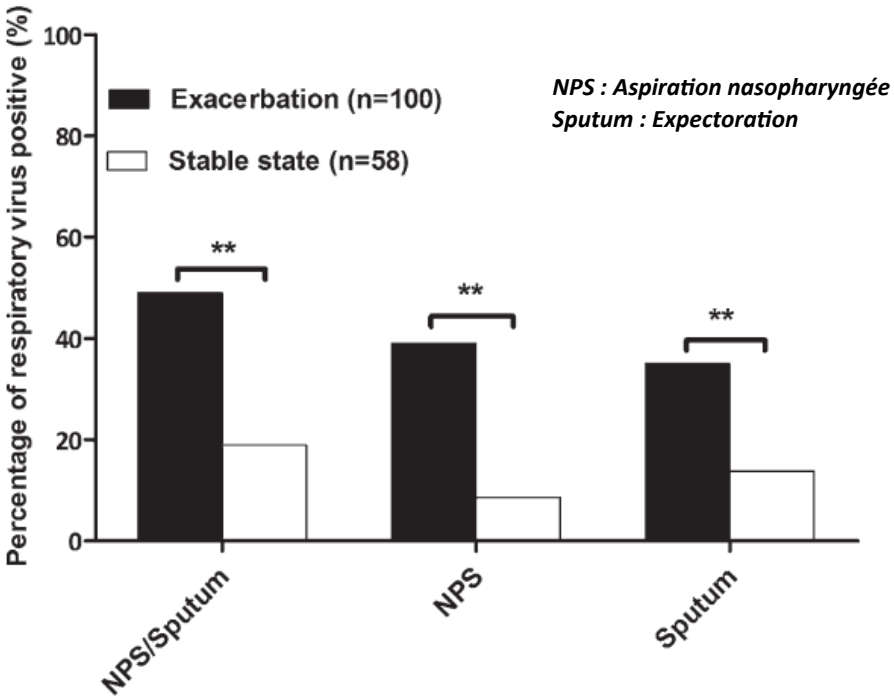
Gao et al, CHEST 2015

Co-isolement de virus

The Role of Viral Infection in Pulmonary Exacerbations of Bronchiectasis in Adults



58 patients avec au moins 1 exacerbation, au total 127 exacerbations dont 100 rapportées et exploitées



NPS : Aspiration nasopharyngée
Sputum : Expectoration

Détection de virus (Aspiration NP et Expectoration): 49/100 exacerbations déclarés (49,0%) et 11 des 58 patients (18,9%) à l'état de base (P< .001).

Gao et al, CHEST 2015

Co-isolement de virus

The Role of Viral Infection in Pulmonary Exacerbations of Bronchiectasis in Adults

Virus	All	
	Exacerbation	Steady State
Cases, No.	100	58
Total viruses, No.	65	14
Coronavirus	19 (19.0)	5 (8.6)
229E	6 (6.0)	1 (1.7)
OC43	9 (9.0)	2 (3.4)
NL63	2 (2.0)	0 (0.0)
HKU1	2 (2.0)	2 (3.4)
Rhinovirus	16 (16.0)	2 (3.4)
Influenza	16 (16.0)	4 (6.9)
Influenza A	12 (12.0)	3 (5.2)
2009 Influenza A (H1N1)	3 (3.0)	0 (0.0)
Influenza B	1 (1.0)	1 (1.7)
Parainfluenza	3 (3.0)	0 (0.0)
Type 1	1 (1.0)	0 (0.0)
Type 2	1 (1.0)	0 (0.0)
Type 3	1 (1.0)	0 (0.0)
Type 4	0 (0.0)	0 (0.0)
Respiratory syncytial virus	7 (7.0)	0 (0.0)
Metapneumovirus	1 (1.0)	0 (0.0)
Enterovirus	2 (2.0)	1 (1.7)
Adenovirus	1 (1.0)	2 (3.4)

Gao et al, CHEST 2015

- Score BSI + ↗ exacerbation virus + (p<0,015) BSI > 5 : 56% vs BSI < : 4 28%
- ↗ ATB IV Exa virus + (67.3% vs 43.1%; p<0.015)

Coisolement

- **PA en baseline : 19 (42.2%) Exa V+ ; 12 (25.0%) Exa V-**
- **Charge bactérienne identique dans les deux groups (Exa V- 0.01 log 10 CFU/mL; Exa V+ 0.10 log 10 CFU/mL**

Co-isolement de virus

Lower Airway Microbiology and Cellularity in Children With Newly Diagnosed Non-CF Bronchiectasis

- ***Retrospectif***; prevalence; 113 patients < 18 ans
- Stables (discutable)
- 1992 à 2009; IVRB definit par 10^5 UFC
- LBA patients nouvellement diagnostiqué DDB dans les 4 semaines
- 113 LBA bactériologie; 88 LBA mycobactérie; 93 fongiques
- **Virus** : 111 LBA immunofluorescence and the rest by PCR

Pediatric Pulmonology (2012)

Coisolement mixtes

Lower Airway Microbiology and Cellularity in Children With Newly Diagnosed Non-CF Bronchiectasis

- Coinfection bactérienne : M. Pneumoniae 2/102
  - 1 + H influenza
- Virus respiratoires : 14 LBA (12%)
  - BAL fluid specimens [RSV (3), parainfluenza 1 (1), parainfluenza (3), influenza A (1), adenovirus (5), and hMPV (1)]
  - **8 coisolement (105 UFC) : H. influenzae (5), H. influenzae + S. pneumoniae (2), P. aeruginosa (1)**

Pediatric Pulmonology (2012)

Coisolation mixtes

Microbiology and outcomes of community acquired pneumonia in non cystic-fibrosis bronchiectasis patients

- Etude ***observationelle prospective*** entre 2000 et 2011
- Caractéristiques cliniques et microbiologiques des patients suivis pour PAC
- PAC = 3495 PAC dont 90 (2%) → BNM
- Documentations : PAC 1399 (41,1%) et PAC-BNM 45 (50%)
- Microorganismes PAC : Streptococcus pneumoniae, virus respiratoires, **infections mixtes,** bactéries atypiques
- **Coisolement (infections mixtes) : BNM : 6 (13,3%) ; Autres : 180 (12,9%)**

Polverino et al. J infect 2015

Coisolement mixtes

Microbiology and outcomes of community acquired pneumonia in non cystic-fibrosis bronchiectasis patients

Table 4 Overall frequencies of main isolated microorganisms (monomicrobial and mixed infections).

	NCFBE-CAP n, %		CAP n, %		p-value
Streptococcus pneumoniae	24	53.3%	714	51.0%	0.885
Pseudomonas aeruginosa	7	15.5%	40	2.9%	**<0.001**
Haemophilus influenzae	4	8.8%	83	5.9%	0.618
Respiratory viruses	6	13.3%	290	20.7%	0.308
Atypical pathogens	2	4.4%	149	10.7%	0.279
Enterobacteriaceae	4	8.8%	33	2.4%	**0.025**
Staphylococcus aureus	4	8.8%	50	3.6%	0.157
Legionella pneumophila	1	2.2%	111	7.9%	0.266

Note: Percentages refer to cases with known microbial etiology (NCFBE-CAP: 45, CAP: 1399).
Atypical pathogens include: *Mycoplasma pneumoniae*, *Coxiella burnetii*, *Chlamydia pneumoniae*.
Enterobacteriaceae include: *Escherichia coli*, *Klebsiella pneumoniae*, *Proteus mirabilis*, *Providencia stuartii*.
Variables with p-values<0.05 are in bold.

Coisolement

- **P. aeruginosa plus autres : PAC BNM (13.3%) vs PAC autres (1.0%); p < 0.01**
- **S. pneumoniae et autres; H. influenza et autres : pas de différences**

Polverino et al. J infect 2015

Coisolement mixtes

Non cystic fibrosis bronchiectasis: A longitudinal retrospective observational cohort study of Pseudomonas persistence and resistance

Etude restrospective, UK : 2007 à 2009, 155 patients analyse microbiologique
Stratification : germes & fonction respiratoire
Coisolement polymicrobien : n=39 soit 25,2%!

Table 3 Non-cystic fibrosis bronchiectasis cohort stratified by presence of *Pseudomonas aeruginosa* colonisation.

n	PA+	PA-	Total	*p*-value
	47	108	155	
Female gender, *n* (%)	24 (51.1)	70 (64.8)	94 (60.6)	0.107
Age in years, mean (SD)	65.1 (8.9)	60.8 (13.5)	62.1 (12.4)	0.047
Smokers (current or ex-smokers), *n* (%) (*n* = 112)	17/33 (51.5)	51/79 (64.5)	68 (607)	0.898
MRCD 4-5, *n* (%) (*n* = 152)	17 (36.2)	29 (26.9)	46 (29.7)	0.236
FEV_1% predicted (*n* = 146), mean (SD)	49.8 (20.9)	65.4 (24.9)	60.6 (24.7)	<0.001
Lung function severity, *n* (%)	*n* = 46	*n* = 100	*n* = 146	<0.001
Mild	5 (10.9)	29 (29.0)	34 (22.8)	
Moderate	23 (48.9)	52 (52.0)	75 (51.4)	
Severe	18 (38.3)	19 (19.0)	37 (25.3)	
No. exacerbations, mean (SD) (*n* = 143)	4.6 (2.6)	4.3 (3.3)	4.4 (3.1)	0.581
≥3 exacerbations, *n* (%)	34 (72.3)	75 (69.4)	109 (73.6)	0.836
No. patients requiring hospital admission, *n* (%) (*n* = 143)	21 (44.6)	32 (29.6)	53 (37.1)	0.035
Polymicrobial colonisation, *n* (%)	21 (44.7)	18 (16.7)	39 (25.2)	<0.001
No. microbes isolated, mean (SD)	3.5 (1.7)	3.0 (2.0)	3.1 (1.9)	0.317
No. deaths, *n* (%)	9 (19.1)	13 (12.0)	22 (14.2)	0.316
Follow-up, months, median (IQR)	46 (40–65)	47 (31–59)	46 (35–62)	0.936

McDonnell et al. Respir Med 2015

Coisolement mixtes

Non-tuberculous mycobacterial disease is common in patients

Variable	NTM patient,*n* (%)	Non-NTMpatient,*n* (%)	*p*-Value
Age >65 years	45 (66)	23 (46)	0.0150
Male	11 (16)	30 (34)	0.0120
Family history of bronchiectasis	3 (4.4)	1 (1.1)	0.3200
PFT obstructive defect	7 (39)	34 (51)	0.3740
PFT restrictive defect	4 (27)	23 (39)	0.5500
Bronchiectasis seen in CXR	22 (33)	22 (26)	0.3490
IV antibiotic therapy	4 (6)	16 (18)	0.0290
Clearance device	31 (46)	11 (12)	<0.0001
Flutter valve used	29 (43)	2 (2.3)	<0.0001
Mortality	1 (2)	5 (6)	0.1610

Characteristics of the 182 patients enrolled in the study. Adapted from Mirsaeidi et al. *Int J Infect Dis*. 2013

Mirsaeidi et al. *Int J Infect Dis*. 2013

Coisolement mixtes mnt

Non-tuberculous mycobacterial disease is common in patients with nor

Variables	*p*-Value	OR (95% CI)
Age >65 years	0.191	0.51 (0.186–1.399)
Female gender	0.051	3.828 (0.997–14.704)
Recurrent childhood pulmonary infections	0.087	0.426 (0.160–1.132)
BMI	0.008	0.876 (0.795–0.966)
COPD	0.487	9.584 (0.128–2.662)
GERD	0.932	0.935 (0.195–4.478)

Coisolement

BGN (Enterobacteries et genre Pseudomonas) 22 patients (14%)

Mirsaeidi et al. *Int J Infect Dis*. 2013

Coisolement mixtes mnt

Adult Bronchiectasis Patients: A First Look at the United States Bronchiectasis Research Registry

- United States Bronchiectasis Research Registry : Etude descriptive
- 1941 patients inclus entre 2008 and 2014, 1826 évaluables
- 79% de femmes, 60% non fumeurs, âge 64±14 ans
- 63% atcds MNT ou MNT isolée en baseline
- Statification en fonction MNT : patients MNT (atdcs ou isolats positifs)
- 90% au moins une culture en baseline
  - 1314 (72%) de MNT, 1406 (77%) bacterie et 1087 (60%) fongiques

Aksamitet al. Chest 2016

Coisolement mixtes mnt

Adult Bronchiectasis Patients: A First Look at the United States Bronchiectasis Research Registry

- MNT : 484 (37%) *M. avium* complex; 130 (10%) *M. abscessus/chelonae;* 90 (8%) autre MNT ou Nocardia species…
- Bacteries : 470 (33%) *Pseudomonas sp* , 170 (12%) *S. aureus.*
- Fongiques : *Aspergillus sp*. en majorité

Coisolement :

- **P Aeruginosa : patients MNT(270, 30%); patients sans MNT (200, 40%) p <0,01**
- **S Aureus : patients MNT 92 (10%); patients non MNT 78 (15%) p <0,01**
- **Aspergillus : patients MNT (159, 21%) et patients non-NTM (52,16%) p = 0,08**

Aksamit et al. Chest 2016

Coisolement mixtes mnt

Prevalence and Factors Associated with Isolation of Aspergillus and Candida from Sputum in Patients with Non-CF Bronchiectasis

- Etude ***observationnel*** multcentrique (4 centres Espagnoles)
- Persistence de *Aspergillus* spp. et *Candida albicans :* ≥ 2 cultures positives à 6 mois d'intervalle sur une période de 5 years.
- Patients ABPA exclus
- Evaluation sur 5 ans entre 2002 et 2010.
- 252 patients, 62.7% femme study. 200 patients avec au moins 2 expectorations +
- Objectif : prevalence et facteurs associés à l'isolement et la persistence de ces germes

Table 2. Microbiological characteristics of the study cohort (n = 252)

	n (%)
Chronic bacterial infection	
P. aeruginosa	104 (41.3)
H. influenzae	55 (21.8)
Chronic bacterial infection, other PPMs	22 (8.7)
Isolation of *Aspergillus* spp.	61 (24.2)
Isolation of *C. albicans*	114 (45.2)

PPMs = Potentially pathogenic microorganisms.

Máiz et al Respiration 2015

Coisolement fongiques

Prevalence and Factors Associated with Isolation of Aspergillus and Candida from Sputum in Patients with Non-CF Bronchiectasis

Espèces fongiques	n (%)	persistants
Champignons Filamenteux	65 (25,8)	
Asper Spp	61 (24,2)	18 (8,7)
Asper Fimugatus	20 (7,9)	
Asper Niger	6 (2,4)	
Candidas Albicans		71 (34,5)
Autres espèces	13 (5,2)	
Penicillium	3	
Mucor	1	
Scedosporium Apiospermum	2	
Fusarium	2	
Sacharomyces cerevisiae	1	
Alternaria	1	
Rhodotororula	1	
double isolation	2	

Table 5. Multiple logistic regression analysis of risk factors for persistence of *Aspergillus* spp. and *C. albicans*

	Adjusted OR (95% CI)	p value
Factors associated with *Aspergillus* spp.[a]		
Macroscopic appearance of sputum (mucopurulent or purulent)	3.75 (1.03; 13.14)	0.045
Factors associated with *C. albicans*[b]		
Long-term antibiotic treatment	2.37 (1.30; 4.17)	0.005

Table 3. Multiple logistic regression analysis of risk factors for isolation of yeast[a] (n = 114)

	Adjusted OR (95% CI)	p value
Age (years)	1.02 (1.01–1.04)	0.02
Macroscopic appearance of sputum (mucopurulent or purulent)	1.41 (1.1–1.99)	0.049
Postbronchodilator FEV_1 (% predicted)	0.98 (0.97–0.99)	0.002
Long-term antibiotic treatment	2.04 (1.1–3.8)	0.024

Máiz et al **Respiration 2015**

Coisolement fongiques

Prevalence and Factors Associated with Isolation of Aspergillus and Candida from Sputum in Patients with Non-CF Bronchiectasis

	Persistent *Aspergillus* spp.			Persistent *C. albicans*		
	patients without (n = 188)	patients with (n = 18)	p value	patients without (n = 135)	patients with (n = 71)	p value
Age, years	56 (42; 67)	67 (51.3; 73.3)	0.029	54 (40; 68)	62 (50; 70)	0.012
Female gender	121 (62.8)	12 (66.7)	0.743	91 (67.4)	38 (53.5)	0.050
Body mass index	25 (21; 28)	26 (21; 27)	0.947	25 (21; 28)	25 (22; 28)	0.467
Smoking history (pack-years)			0.686			0.842
Never smoked	136 (72.3)	13 (72.2)		96 (71.1)	52 (73.2)	
Exsmoker	41 (21.8)	5 (27.8)		32 (23.7)	15 (21.2)	
Current smoker	11 (5.9)	0		7 (5.2)	4 (5.6)	
Dyspnea (mMRC)			0.179			0.017
0	58 (32.6)	3 (18.8)		48 (36.9)	13 (20.3)	
1	51 (28.7)	5 (31.3)		38 (29.2)	19 (29.7)	
2	45 (25.3)	3 (18.8)		26 (20.1)	21 (32.8)	
3	16 (9)	5 (31.3)		16 (12.3)	7 (10.9)	
4	8 (4.5)	0		2 (1.5)	4 (6.3)	
Appearance of sputum			0.002			0.008
Mucoid	66 (38.2)	3 (16.7)		51 (41.5)	18 (26.5)	
Mucopurulent or purulent	107 (61.8)	15 (83.3)		72 (58.5)	50 (73.5)	
Cystic bronchiectasis	48 (25.5)	4 (22.2)	1.000	29 (21.5)	24 (33.8)	0.049
Number of affected lobes	2 (2; 3)	3 (2; 3.3)	0.286	2 (2; 3)	3 (2; 4)	0.129
Respiratory insufficiency			384	9 (6.7)	9 (12.7)	0.147
FVC, % predicted			515	78.8±22.8	68.1±19.9	0.003
Postbronchodilator FEV_1, % predicted			285	71.0±21	58.4±22	0.012
CRP			555	1 (0; 5)	1 (0; 3)	0.610
Chronic bacterial infection						
P. aeruginosa	83 (44.1)	9 (50)	0.633	52 (38.5)	39 (54.9)	0.024
H. influenzae	43 (22.9)	4 (22.2)	1.000	38 (28.1)	9 (12.7)	0.012
Chronic bacterial infection, other PPMs	15 (11.7)	2 (12.5)	0.870	10 (11.8)	8 (14.5)	0.280
Isolation of *Aspergillus* spp.	n.a.	n.a.	n.a.	33 (24.4)	23 (32.4)	0.223
Isolation of *C. albicans*	91 (48.4)	12 (66.7)	0.139	n.a.	n.a.	n.a.
Hospitalizations	0 (0; 1)	1 (0; 1.3)	0.105	0 (0; 1)	0 (0; 1)	0.049
Exacerbations	3 (2; 4)	2.5 (2; 4.5)	0.772	2 (2; 4)	4 (2; 6)	0.051
Courses of oral corticosteroids	0 (0; 0)	0 (0; 4)	0.074	0 (0; 0)	0 (0; 1)	0.001
Long-term antibiotic treatment	68 (36.2)	9 (50)	0.247	41 (30.4)	36 (50.7)	0.004
Long-term corticosteroid treatment	5 (3.8)	2 (20)	0.077	4 (3.9)	3 (7.5)	0.402
Long-term macrolide treatment	24 (12.8)	2 (11.1)	1.000	20 (14.8)	5 (7)	0.120

Coisolement

Máiz et al **Respiration 2015**

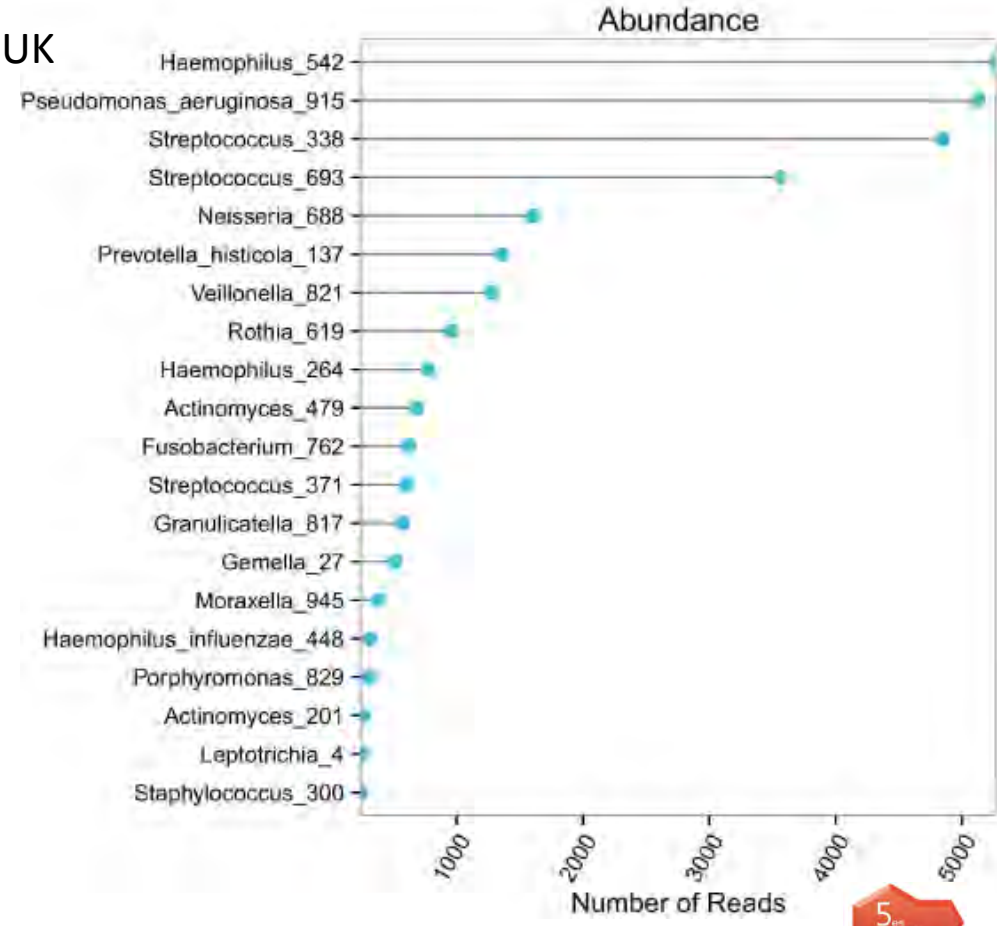
Coisolement fongiques

Longitudinal assessment of sputum microbiome in non-cystic fibrosis bronchiectasis patients

- Etude longitudinale microbiome/expectorations, UK
- Recueil mensuel et exacerbations (n=36)
- Durée 6 mois
- Comparaison avec données cliniques
- Données évaluables pour 76 patients et 381 échantillons

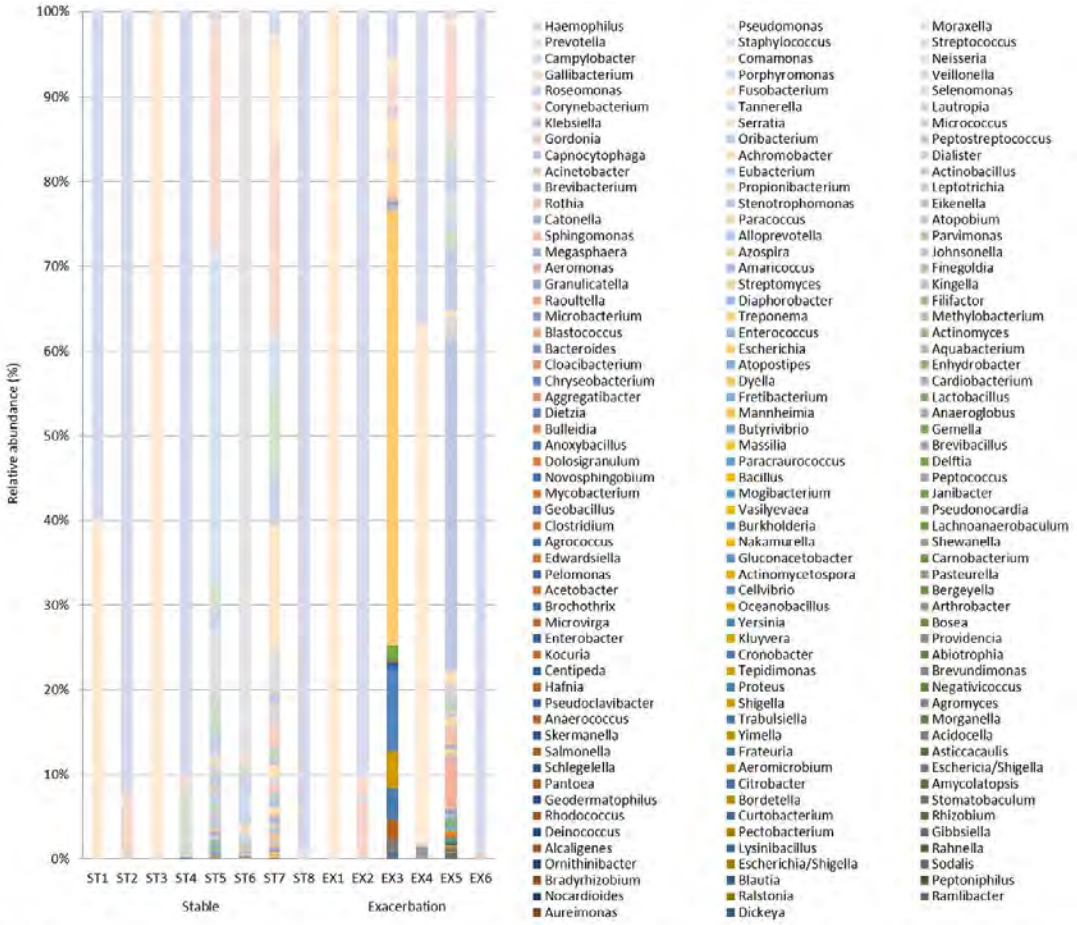
Indices de diversités

- Multiple agents pathogènes mais faible diversité
- Faible variance :
  - prophylaxie (Colistine)
  - Isolement de PA mucoïde
  - H. influenzae
  - S. aureus.



Cox et al. Plosone 2017

Differences of lung microbiome in patients with clinically stable and exacerbated bronchiectasis



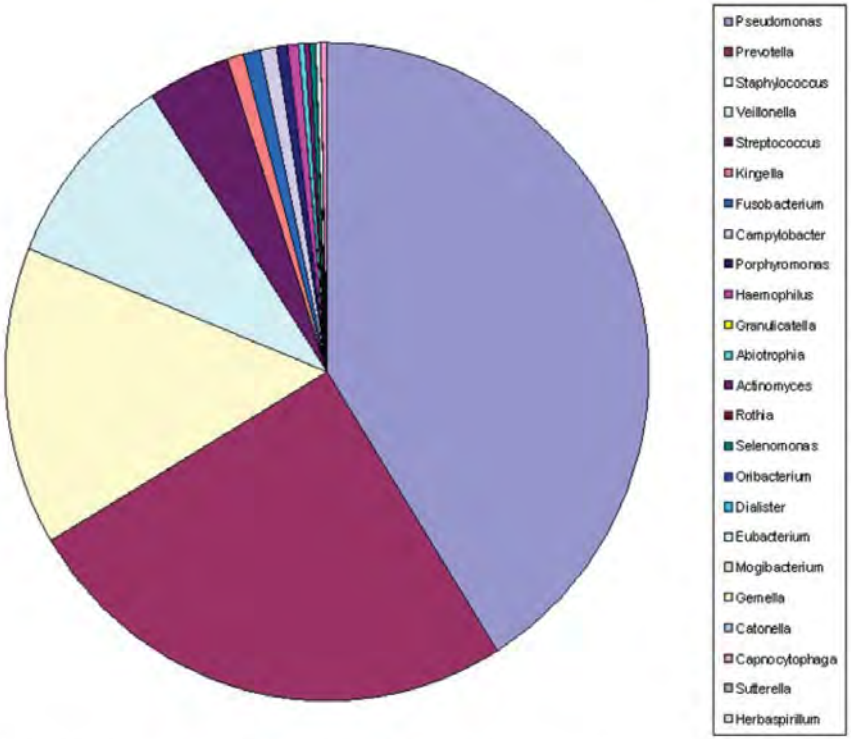
Byun et al. Plosone 2017

Microbiome

- Equipe Coréenne (Séoul)
- 14 patients BNM
- 64% : sexe féminin
- Suivi : Jan à Dec 2016
- 8 stables
- 6 exacerbations
- Age : 42 à 78 ans

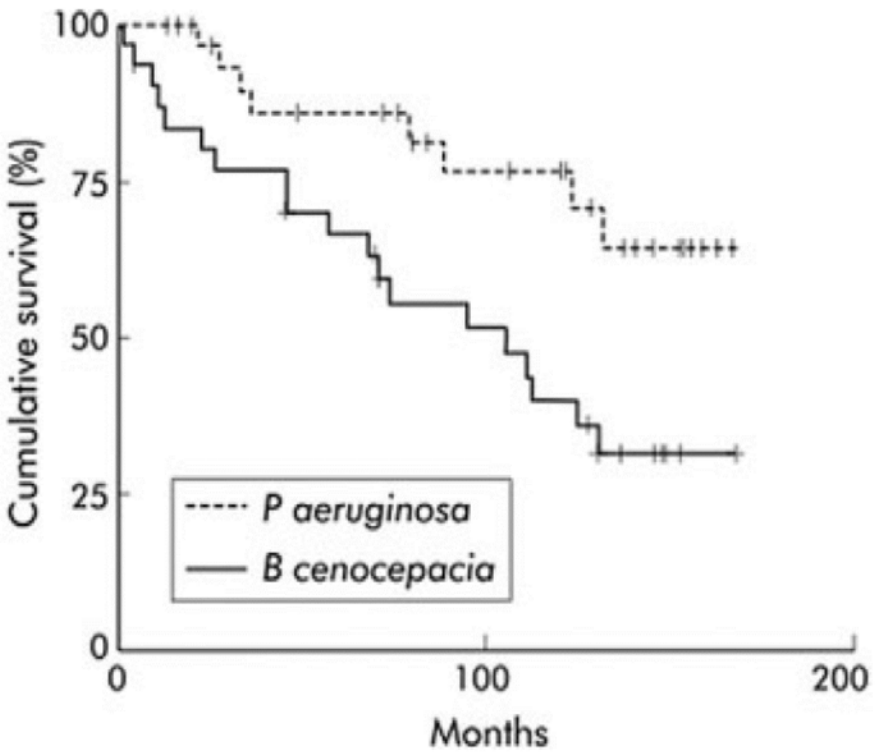
- Indices (alpha et béta diversités
- Pas de variations significative du microbiome

The Microbiome and Emerging Pathogens in Cystic Fibrosis and Non–Cystic Fibrosis Bronchiectasis



Pie chart showing the microbial diversity in the sputum of an adult with cystic fibrosis.

Burkholderia, Stenotrophomonas, Achromobacter, Ralstonia Pandoraea, Nontuberculousmycobacteria, Fungal species...



Green Semin Respir Crit Care Med 2015

Microbiome

Que faire des coisolements

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], Gernot Rohde[23], Francesco Blasi[7], Stuart Elborn[9,24], Marta Almagro[25], Alan Timothy[25], Thomas Ruddy[25], Thomy Tonia[26], David Rigau[27] and James D. Chalmers[28]

Pas de données sur les coisolements…

Risk factors for multidrug-resistant pathogens in bronchiectasis exacerbations

- Etude observationelle prospective
- Patients en premières exacerbation
- Recherche de BMR

- Objectif : facteurs des risques associés aux excacerbation et BMR

- 233 exacerbations, microorganismes pour 159 episodes.

- MBR 20.1% épisodes:
  - P aeruginosa (48.5%)
  - SAMR (18.2%)
  - BLSE (6.1%)

Menéndez et al. BMC Infectious Diseases 2017

Table 2 Microorganisms isolated in exacerbations

Microorganism Isolated	Total No. 241 (100)
Pseudomonas aeruginosa	51 (21.16)
[a]MDR *Pseudomonas aeruginosa*	16 (6.64)
Methicillin susceptible *Staphylococcus aureus*	11 (4.56)
Methicillin resistant *Staphylococcus aureus*	6 (2.49)
Acinetobacter sp	3 (1.24)
Moraxella catarrhalis	7 (2.9)
Stenotrophomonas maltophilia	4 (1.66)
Enterobacteriaceae	12 (4.98)
Escherichia coli	5 (2.07)
Proteus spp	3 (1.24)
Klebsiella pneumonia	3 (1.24)
Serratia spp	1 (0.41)
Haemophilus influenzae	27 (11.2)
Streptococcus pneumoniae	25 (10.37)
Achromobacter xylosoxidans	5 (2.07)
Mycoplasma pneumoniae	6 (2.49)
Chlamydia pneumoniae	1 (0.41)
Atypical mycobacteria	4 (1.66)
Aspergillus spp	12 (4.98)
Candida spp	15 (6.22)
Virus	25 (10.37)
Coronavirus	1 (0.41)
Metapneumovirus	4 (1.65)
Rhinovirus	10 (4.14)
Influenza A	3 (1.24)
Influenza B	2 (0.82)
Parainfluenza 3	2 (0.82)
Respiratory Syncytial virus	3 (1.24)
Others	11 (4.56)

Risk factors for multidrug-resistant pathogens in bronchiectasis exacerbations

Table 4 Multivariate analysis to predict Multidrug-resistant pathogens

	Multidrug-Resistant Microorganisms		
	OR[a]	95% CI[b]	*p*
Age	1.03	0.97-1.09	0.393
Male	0.77	0.25–2.41	0.656
Arterial hypertension	0.83	0.27–2.62	0.756
Congestive heart failure	1.60	0.40–6.45	0.511
COPD	1.51	0.45–5.03	0.500
Renal disease	7.60	1.92–30.09	0.004
Age-adjusted Charlson >5	0.64	0.19–2.16	0.469
Chronic *Pseudomonas aeruginosa* infection	0.41	0.11–1.55	0.189
Prior multidrug-resistant microorganism isolation	5.58	2.02–15.46	0.001
Inhaled/Nebulized antibiotic	1.93	0.57–6.47	0.288
Chronic oxygen therapy	1.90	0.57–6.32	0.297
Hospitalization last year	3.88	1.37–11.02	0.011
Severe FACED	0.72	0.22–2.29	0.573
Severe BSI	1.58	0.42–5.95	0.501

[a]OR: Odds ratio
[b]CI: Confidence interval

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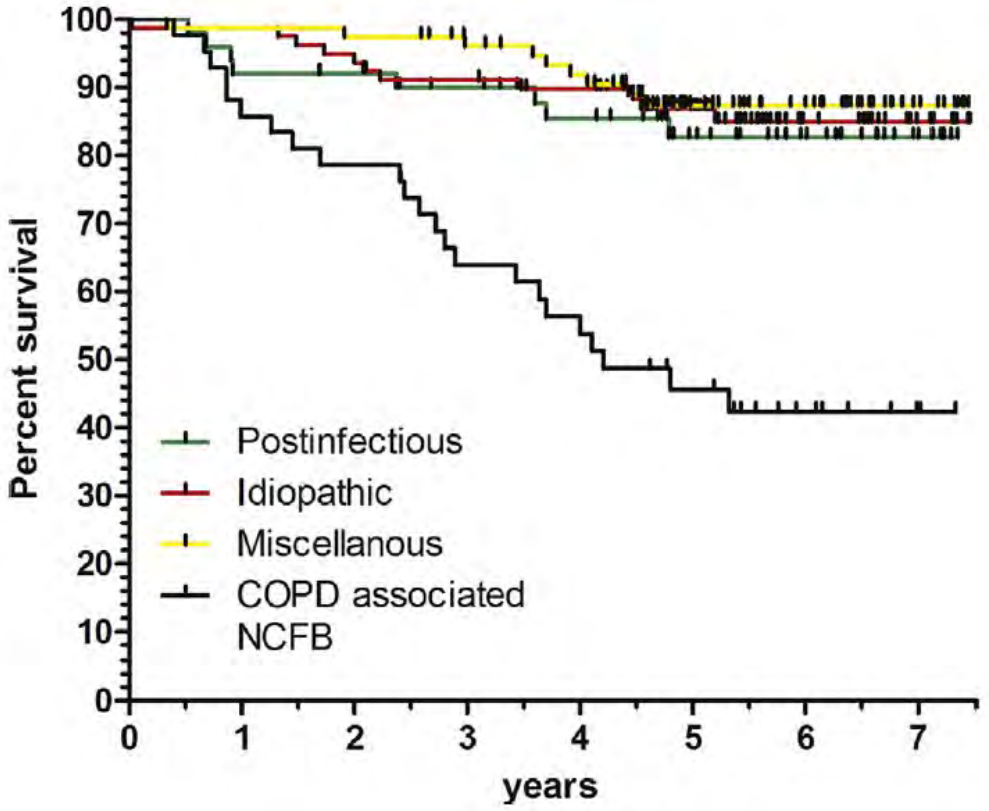
Pas de données sur les coisolements…

Mortality in non-cystic fibrosis bronchiectasis: A prospective cohort analysis



Goeminne et al. Respiratory Medecine 2014

Pas de données sur les coisolements…

Conclusions perspectives

- Co-isolement fréquent : jusqu'à 25% en fonction des séries
  - Facteur indépendant de colonisation à *P aeruginosa*
  - Donnés prospectives : peu de patients
  - Données de registre : descriptive
- Cause de sur-morbidités +++
- Virus et exacerbations des maladies chroniques »
  - 50% des exacerbations directement ou indirectement (BPCO, Mucoviscisose)
  - Recherche systématique? Quelle stratégie en cas d'isolement ?
- Pas de conduites à tenir claire dans la littérature
- Etudes prospectives à large échelle : questions à réponses non claires
  - Virus, pathogènes émergeants, traitements?
  - Flore commensales
- Base de données comme EMBARC (> 10.000 patients)