

Table E1. Requested to and retrieved items from contact authors

	de Mello <i>et al.</i> (37)	Ellender <i>et al.</i> (38)	Jarand <i>et al.</i> (39)	Koh <i>et al.</i> 2016(42)	Koh <i>et al.</i> 2017(43)	Namkoong <i>et al.</i> (40)	Park <i>et al.</i> (44)	van Ingen <i>et al.</i> (41)
Demography								
Age	*	*	*	*	*	*	*	*
Sex	*	*	*	*	*	*	*	*
Body mass index	-	*	*	*	*	*	*	*
Smoking status	*	-	*	*	*	*	*	*
Medical history								
Previous history of treatment for NTM/TB	*	-	*	*	*	*	*	*
Chronic obstructive pulmonary disease	*	*	*	*	*	*	*	*
Asthma	*	-	*	*	*	*	*	*
Cystic fibrosis	*	*	*	*	*	*	*	-
Bronchiectasis	*	*	*	*	*	*	*	*
Malignancy	*	-	*	*	*	*	*	*
Chronic kidney disease	*	-	*	*	*	*	*	-
Chronic liver disease	*	-	*	*	*	*	*	-
Diabetes mellitus	*	-	*	*	*	*	*	*
HIV infection	*	-	*	*	*	*	*	*
Immune-suppressive agent or steroid use	*	-	*	*	*	*	*	*
AFB smear and culture								
AFB smear positivity (or quantification)	-	*	-	*	*	*	*	*
Culture sample origin (sputum/bronchial washing/BAL/tissue)	*	*	-	*	*	*	*	*
Drug susceptibility test results (MIC)								
Clarithromycin (day 3, 7, and 14)	-	-	-	*	*	*	*	*
Amikacin	-	-	-	*	*	*	*	*
Cefoxitin	-	-	-	*	*	-	*	*
Ciprofloxacin	-	-	-	*	*	-	*	*
Moxifloxacin	-	-	-	*	*	-	*	*
Imipenem	-	-	-	*	*	-	*	*
Linezolid	-	-	-	*	*	-	*	*

Tigecycline	-	-	-	*	*	-	*	*
Symptoms present prior to treatment								
Hemoptysis	-	*	*	*	*	*	*	*
Cough	-	-	*	*	*	*	*	*
Sputum	-	-	*	*	*	*	*	*
Dyspnea	-	-	*	-	-	*	*	*
Weight loss	-	*	*	*	*	*	*	*
Fever	-	-	*	*	*	*	*	*
Night sweat	-	*	*	-	-	*	*	*
Malaise	-	-	*	-	-	*	*	*
Radiographic features prior to treatment								
Nodular bronchiectatic	*	*	*	*	*	*	*	*
Fibrocavitary	*	*	*	*	*	*	*	*
Indeterminate	*	*	*	*	*	*	*	*
Extent of disease (number of involved lobes or bilateral/unilateral involvement)	*	-	*	-	-	*	*	*
Medical treatment								
Clarithromycin	*	*	*	*	*	*	*	*
Azithromycin	*	*	*	*	*	*	*	*
Amikacin	*	*	*	*	*	*	*	*
Cefoxitin	*	*	*	*	*	*	*	*
Imipenem	*	*	*	*	*	*	*	*
Moxifloxacin or levofloxacin	*	*	*	*	*	*	*	*
Linezolid	-	-	*	*	*	*	*	*
Tigecycline	*	-	*	*	*	*	*	*
Clofazimine	-	*	*	*	*	*	*	*
Other	*	*	*	*	*	*	*	*
Detailed treatment history								
Subspecies identification result	*	*	-	*	*	*	*	*
Time from diagnosis to treatment	-	-	-	-	-	*	*	*
Duration of total treatment	*	*	*	*	*	*	*	*

Duration of intravenous treatment	-	*	*	*	*	*	*	-
Daily or thrice weekly treatment	-	-	-	*	*	*	*	-
Hospitalization (or outpatient setting)	-	-	-	*	*	*	*	-
Surgical resection								
Segmentectomy/lobectomy/pneumonectomy	-	-	*	*	*	*	*	-
Treatment outcomes								
Culture conversion for 12 months while on treatment or till the end of treatment	*	*	*	*	*	*	*	*
AFB smear and culture results at each clinic visit	-	*	*	*	*	*	*	*
Symptom improvement or worsening after treatment	*	*	*	*	*	*	*	*
Radiographic improvement or worsening after treatment	*	-	*	*	*	*	*	*
Death prior to planned treatment completion	*	*	*	*	*	*	*	*
Loss to follow-up or discontinuation prior to planned treatment completion	*	*	*	-	-	*	*	*
Adverse drug reactions								
Allergic reaction or anaphylaxis	-	-	*	*	*	*	*	*
Skin irritation	-	-	*	*	*	*	*	*
Gastro-intestinal disturbance	-	-	*	*	*	*	*	*
Abnormal liver function test	-	-	*	*	*	*	*	*
Acute kidney injury	-	*	*	*	*	*	*	*
Ototoxicity	-	*	*	*	*	*	*	*
Ocular toxicity	-	*	*	*	*	*	*	*
Neuropathy	-	-	*	*	*	*	*	*
Others	-	-	*	-	-	*	*	*
Follow-up after treatment								
Total duration of follow-up after treatment	-	-	*	*	*	-	*	*
Recurrence or relapse during follow-up	-	-	*	*	*	*	*	*

Co-infection with other NTM species while on treatment and during follow-up	-	-	*	-	-	*	*	*
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Abbreviation: NTM, nontuberculous mycobacterium; TB, tuberculosis; HIV, human immuno-deficiency virus; AFB, acid-fast bacilli; BAL, bronchial alveolar lavage; MIC, minimal inhibitory concentration

Asterisk and dash mean the presence and absence of the items, respectively

Table E2. Quality assessment of included studies

Study [Ref.]	Selection			Measurement			Outcome			
	Representativ- eness of MAB-PD patients	Ascertainm- ent of treatment regimens	Confirmation of MAB through mycobacterial culture	Risk of bias	Subspecies identification	Risk of bias	Explicit treatment outcome assessment by culture results	Adequate treatment duration (Intention to treat for more than 12 months)	Adequacy of follow-up after treatment	Risk of bias
de Mello <i>et al.</i> (37)	*	*	*	low	*	low	*	*	*	low
Ellender <i>et al.</i> (38)	*	*	*	low	*	low	*	*	-	medium
Jarand <i>et al.</i> (39)	*	*	*	low	-	high	*	*	*	low
Koh <i>et al.</i> 2016(42)	*	*	*	low	*	low	*	*	*	low
Koh <i>et al.</i> 2017(43)	*	*	*	low	*	low	*	*	*	low
Namkoong <i>et al.</i> (40)	-	*	*	medium	*	low	*	*	-	medium
Park <i>et al.</i> (44)	*	*	*	low	*	low	*	*	-	medium
van Ingen <i>et al.</i> (41)	*	*	*	low	*	low	*	*	*	low

Abbreviation: MAB, *Mycobacterium abscessus*; PD, pulmonary disease.

Asterisk and dash mean the presence and absence of the items, respectively

Table E3. Overview of six studies excluded from the analysis (references are below the table)

Author	Study period (years)	Region	Subspecies identification	Total patients (n)	Definition for treatment outcomes
Jo (32)*	1996-2003	South Korea	No	29	Cure was defined as three or more consecutive negative cultures for 12 months while on treatment and completion of treatment for at least 12 months
Lyu, 2011 (17)*	2003-2008	South Korea	No	41	Treatment success was defined to satisfy all of the followings: (1) culture conversion, (2) clinical improvement (3) minimum duration of treatment at least 6 months, (4) completion of treatment according to the physician's decision
Harada (33)	1990-2010	Japan	Yes	102	Treatment response was assessed as followings: (1) radiological improvement (2) initial sputum conversion to negativity (3) relapse after sputum conversion
Lyu, 2014 (34)*	2006-2012	South Korea	Yes	48	Treatment success was defined to satisfy all of the followings: (1) culture conversion, (2) clinical improvement (3) minimum duration of treatment at least 6 months, (4) completion of treatment according to the physician's decision
Roux (36)†	2001-2004	France	Yes	43	Response to treatment was measured in terms of mycobacterial eradication.
Martiniano (35)‡	2006-2014	United States	Yes	54	Subjects with culture conversion (defined as having at least 2 consecutive negative cultures) to negative were classified as “responders”

*Population overlap between these studies was estimated.

†All patients had cystic fibrosis. The vast majority of patients were estimated to be non-adults.

‡The patients with refractoriness to previous treatments were included.

Table E4. Detailed characteristics of patients with *M. abscessus* pulmonary disease included in the analysis

	de Mello <i>et al.</i> (37)	Ellender <i>et al.</i> (38)	Jarand <i>et al.</i> (39)	Koh <i>et al.</i> 2016(42)	Koh <i>et al.</i> 2017(43)	Namkoong <i>et al.</i> (40)	Park <i>et al.</i> (44)	van Ingen <i>et al.</i> (41)
Number of patients	26	13	69	71	67	13	36	8
Age, years, median[IQR]	54 [46-67]	65[59-67]	59 [53-68]	57 [52-64]	57 [48-64]	65 [59-67]	62 [54-68]	59 [51-68]
Sex, female, n (%)	11 (42.3)	12 (92.3)	59 (85.5)	61 (85.9)	52 (77.6)	11 (84.6)	28 (77.8)	4 (50.0)
Body mass index, kg/m ² , median [IQR]	n/a	21.0 [19.0-22.0]	21.0 [20.0-23.0]	20.7 [19.1-21.9]	20.3 [18.5-22.0]	19.1 [17.4-21.0]	18.9 [17.7-21.2]	19.9 [18.3-22.7]
Current or previous smoker, n (%)	7 (26.9)	n/a	24 (34.8)	7 (9.9)	9 (13.4)	2 (15.4)	5 (13.9)	6 (75.0)
Presence of respiratory comorbidities, n (%)	11 (42.3)	9 (69.2)	42 (60.9)	68 (95.8)	64 (95.5)	5 (38.5)	15 (41.7)	7 (87.5)
Radiographic findings, n (%)								
Nodular-bronchiectatic	14 (53.8)	0	42 (60.9)	57 (80.3)	53 (79.1)	3 (23.1)	23 (63.9)	3 (37.5)
Fibro-cavitary	12 (46.2)	2 (15.4)	0	14 (19.7)	11 (16.4)	6 (46.2)	13 (36.1)	5 (62.5)
Indeterminate	0	11 (84.6)	27 (39.1)	0	3 (4.5)	4 (30.7)	0	0
Subspecies identification results								
subspecies <i>abscessus</i>	23 (88.5)	4 (30.8)	0	0	67 (100.0)	13 (100.0)	19 (52.8)	0
subspecies <i>massiliense</i>	3 (11.5)	2 (15.4)	1 (1.4)	71 (100.0)	0	0	17 (47.2)	1 (12.5)
subspecies <i>bolletii</i>	0	1 (7.6)	0	0	0	0	0	0
unidentified	0	6 (46.2)	68 (98.6)	0	0	0	0	7 (87.5)
Specification of medical treatment, n (%)								
Clarithromycin	25 (96.2)	8 (61.5)	16 (23.2)	34 (47.9)	40 (59.7)	13 (100)	8 (22.2)	2 (25.0)
Clarithromycin followed by azithromycin	0	0	8 (11.6)	15 (21.1)	12 (17.9)	0	5 (13.9)	
Azithromycin	0	5 (38.5)	32 (46.4)	21 (29.6)	15 (22.4)	0	21 (58.3)	4 (50.0)
Azithromycin followed by clarithromycin	0	0	1 (1.5)	1 (1.4)	0	0	2 (5.6)	
Intravenous amikacin	18 (69.2)	13 (100.0)	52 (75.4)	71 (100.0)	67 (100.0)	13 (100.0)	28 (77.8)	7 (87.5)
Cefoxitin	0	10 (76.9)	12 (17.4)	12 (16.9)	1 (1.5)	0	14 (38.9)	1 (12.5)
Cefoxitin followed by imipenem	0	0	5 (7.2)	0	32 (47.8)	0	9 (25.0)	
Imipenem	1 (3.9)	0	30 (43.5)	17 (23.9)	0	4 (30.8)	6 (16.7)	5 (62.5)

Imipenem followed by cefoxitin	0	0	1 (1.5)	0	0	0	1 (2.8)	
Ciprofloxacin	3 (11.5)	1 (7.7)	29 (42.0)	24 (33.8)	33 (49.3)	0	4 (11.1)	0
Levofloxacin	0	0	3 (4.4)	0	2 (3.0)	1 (7.7)	5 (13.9)	0
Moxifloxacin	0	1 (7.7)	8 (11.6)	12 (16.9)	29 (43.3)	0	3 (8.3)	1 (12.5)
Doxycycline	2 (7.7)	0	1 (1.5)	0	17 (25.4)	0	0	0
Linezolid	0	0	3 (4.4)	0	3 (4.5)	0	1 (2.8)	1 (12.5)
Tigecycline	1 (3.9)	0	3 (4.4)	0	0	0	0	4 (50.0)
Clofazimine	1 (3.9)	2 (15.4)	6 (8.7)	2 (2.8)	12 (17.9)	0	0	7 (87.5)
Minocycline	1 (3.9)	0	4 (5.8)	0	0	3 (23.1)	0	4 (50.0)
Ethambutol	18 (69.2)	2 (15.4)	23 (33.3)	0	0	9 (69.2)	4 (11.1)	0
Rifampicin	0	2 (15.4)	17 (24.6)	0	0	9 (69.2)	3 (8.3)	0
Trimethoprim/sulfamethoxazole	0	0	3 (4.4)	0	0	0	0	0
Surgical resection, n (%)	n/a	n/a	23 (33.3)	5 (7.0)	19 (28.4)	0	5 (13.9)	n/a
Treatment outcome, n (%)								
Microbiologic success	3 (11.5)	4 (30.8)	31 (44.9)	67 (94.4)	28 (41.8)	8 (61.5)	19 (52.8)	4 (50.0)
Symptomatic improvement	13 (50.0)	10 (76.9)	37 (53.6)	68 (95.8)	40 (59.7)	11 (84.6)	18 (50.0)	4 (50.0)
Radiographic improvement	10 (38.5)	n/a	30 (43.5)	61 (85.9)	22 (32.8)	7 (53.8)	16 (44.4)	2 (25.0)

Abbreviation: IQR, Interquartile range; n/a, not applicable.

Total treatment	24.1 [16.0-43.1]	24.7 [16.0-61.0]	0.422	28.7 [23.7-60.0]	23.9 [15.8-42.3]	0.034	18.2 [14.9-24.0]	22.2 [10.6-25.2]	0.559
Use of parenteral drug(s)	1.0 [0.5-4.0]	1.3 [1.0-9.0]	0.005	1.0 [1.0-4.0]	1.0 [1.0-1.5]	0.183	0.5 [0.5-1.0]	1.0 [0.6-1.6]	0.208
Surgical resection	36 (20.7)	16 (19.8)	>0.999	13 (22.8)	9 (21.4)	>0.999	7 (8.5)	0	>0.999

Abbreviation: subsp., subspecies; IQR, Interquartile range.

*Including patient who used clarithromycin first, then changed to use azithromycin. [†]Including patient who used azithromycin first, then changed to use clarithromycin.

[‡]Including patient who used cefoxitin first, then changed to use imipenem. [§] Including patient who used imipenem first, then changed to use cefoxitin.

[¶]Information on treatment duration was not available in 18 patients

^{||}Information on surgical resection was not available in 48 patients.

Symptomatic improvement was determined at the completion of treatment based on the duty physicians’ judgement.

Total treatment	23.6 [15.1-35.0]	30.0 [18.7-67.6]	<0.001	26.4 [18.2-54.0]	25.9 [19.0-50.1]	0.812	18.2 [14.8-24.0]	20.1 [14.0-24.2]	0.599
Use of parenteral drug(s)	1.0 [0.5-3.2]	1.0 [1.0-7.0]	<0.001	1.0 [1.0-4.0]	1.0 [1.0-1.0]	0.089	0.5 [0.5-1.0]	1.0 [0.5-1.6]	0.105
Surgical resection	21 (15.4)	31 (26.1)	0.043	6 (17.1)	16 (25.0)	0.453	5 (6.9)	2 (11.8)	0.615

Abbreviation: subsp., subspecies; IQR, Interquartile range.

*Including patient who used clarithromycin first, then changed to use azithromycin. [†]Including patient who used azithromycin first, then changed to use clarithromycin.

[‡]Including patient who used cefoxitin first, then changed to use imipenem. [§] Including patient who used imipenem first, then changed to use cefoxitin.

[¶] Information on treatment duration was not available in 5 patients

^{||} Information on surgical resection was not available in 35 patients.

Radiographic improvement was determined at the completion of treatment based on the duty physicians' judgement. Radiographic records of thirteen patients were not retrieved.

Table E7. Pooled treatment success rates according to the baseline characteristics

		Total (n=303)				<i>M. abscessus</i> subsp. <i>abscessus</i> pulmonary disease (n=126)				<i>M. abscessus</i> subsp. <i>massiliense</i> pulmonary disease (n=95)			
		Events /Total	Treatment success rates	95% CI	<i>P</i> ²	Events /Total	Treatment success rates	95% CI	<i>P</i> ²	Events /Total	Treatment success rates	95% CI	<i>P</i> ²
Age	≥ 60	77/144	43.1	228-63.4	84.2	23/63	33.5	14.6-52.4	61.9	36/40	69.4	6.5-100.0	84.4
	<60	87/159	49.7	30.2-69.5	81.0	22/63	34.9	13.6-56.1	66.4	46/55	70.2	23.8-100.0	58.8
Sex	Female	135/238	45.8	27.3-64.2	86.5	33/91	31.9	16.9-48.7	43.9	71/79	89.5	52.3-100.0	59.2
	Male	29/65	40.0	16.6-63.4	74.2	12/35	36.6	11.8-64.9	48.4	11/16	45.4	0.0-100.0	83.0
BMI	≥20.5	86/153	60.1	45.6-74.6	56.5	18/56	42.3	27.5-57.1	2.1	45/49	74.5	15.3-100.0	75.1
	<20.5	78/150	44.5	29.7-59.2	64.9	27/70	36.4	23.2-50.5	0.0	37/46	65.0	16.2-100.0	69.5
Respiratory comorbidities	Absence	37/82	50.1	29.1-71.1	76.5	11/35	34.1	9.1-59.1	65.5	11/14	82.1	30.4-100.0	2.5
	Presence	127/221	45.6	23.8-67.4	90.0	34/91	34.3	15.9-52.6	59.8	71/81	57.1	6.2-99.7	78.6
Radiographic features prior to treatment	Nodular bronchiectatic	114/196	50.4	25.3-75.4	91.3	29/80	32.7	12.3-53.2	70.2	63/71	64.3	9.9-100.0	84.5
	Fibrocavitary or indeterminate	50/108	42.9	26.7-59.1	68.7	16/46	29.0	8.0-55.0	62.0	19/24	75.0	26.2-100.0	62.8

Abbreviation: BMI, Body mass index

Table E8. Association of individual drugs with symptomatic improvement

	Total (n=303)			<i>M. abscessus</i> subsp. <i>abscessus</i> pulmonary disease (n=126)			<i>M. abscessus</i> subsp. <i>massiliense</i> pulmonary disease (n=95)		
	Adjusted OR*	95% CI	P-value	Adjusted OR*	95% CI	P-value	Adjusted OR*	95% CI	P-value
Clarithromycin	0.78	0.43-1.41	0.408	0.20	0.07-0.62	0.005	0.16	0.02-1.41	0.096
Azithromycin	1.67	0.92-3.05	0.093	4.58	1.48-14.2	0.007	6.82	0.81-87.6	0.075
Cefoxitin	0.72	0.41-1.27	0.255	1.12	0.45-2.77	0.810	3.55	0.29-43.0	0.306
Imipenem	0.93	0.50-1.76	0.833	0.74	0.15-3.54	0.711	0.21	0.03-1.37	0.113
Amikacin	2.95	1.26-6.91	0.007	19.5	2.01-189.7	0.003	31.7	3.70-271.6	0.002

Abbreviation: subsp., subspecies; OR, odds ratio.

* Adjusted for age, sex, body mass index, initial radiographic finding, and presence of respiratory comorbidity

Table E9. Association of individual drugs with radiographic improvement

	Total (n=290)			<i>M. abscessus</i> subsp. <i>abscessus</i> pulmonary disease (n=122)			<i>M. abscessus</i> subsp. <i>massiliense</i> pulmonary disease (n=93)		
	Adjusted OR*	95% CI	P-value	Adjusted OR*	95% CI	P-value	Adjusted OR*	95% CI	P-value
Clarithromycin	0.67	0.39-1.16	0.159	0.16	0.06-0.49	0.011	1.39	0.45-4.31	0.568
Azithromycin	1.46	0.85-2.46	0.172	5.66	1.86-17.2	0.005	0.96	0.30-3.09	0.942
Cefoxitin	0.69	0.41-1.17	0.171	1.24	0.56-2.75	0.600	0.52	0.14-1.98	0.340
Imipenem	1.48	0.81-2.71	0.201	2.06	0.52-8.20	0.312	0.87	0.22-3.53	0.848
Amikacin	1.37	0.59-3.16	0.470	2.65	0.50-14.2	0.251	3.19	0.54-18.7	0.198

Abbreviation: subsp., subspecies; OR, odds ratio.

* Adjusted for age, sex, body mass index, initial radiographic finding, and presence of respiratory comorbidity