Abstract citation ID: ofae631.211

646. Clinical and microbiological outcomes of omadacycline for pulmonary *Mycobacterium abscessus complex*

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Session: 271. TB and Non-Tuberculosis Mycobacteria Updates
Saturday, October 19, 2024: 4:03 PM

Background. *Mycobacterium abscessus* complex (MABC) is a difficult-to-treat infection due to antibiotic resistance. Our study aimed to assess omadacycline's (OMC) clinical and microbiological outcomes for the treatment of pulmonary MABC.

Table 1: Baseline characteristics[a]

	n=35
Age, yr, median (IQR)	61 (51 – 70)
Female	26 (74.3)
BMI, kg/m², median (IQR)[b]	22.5 (19.3 – 25.4)
Caucasian	26 (74.3)
Insurance	
Government	21 (60.0)
Private	16 (45.7)
Charlson Comorbidity Index, mean (SD)	3 (2 – 4)
Comorbid conditions	
None	8 (22.9)
Asthma	9 (25.7)
Immunosuppression	6 (17.1)
Chronic obstructive pulmonary disease (COPD)	6 (17.1)
Cystic fibrosis	5 (14.3)
Solid Tumor	2 (5.7)
Connective tissue disease	2 (5.7)
Peripheral vascular disease	2 (5.7)
Diabetes	2 (5.7)
Leukemia	2 (5.7)
Cerebrovascular disease	1 (2.9)
Moderate to severe chronic kidney disease	1 (2.9)
Heart failure	1 (2.9)
Peptic ulcer disease	1 (2.9)
MABC subspeciation[b]	
Subsp abscessus	17 (48.6)
Subsp massiliense	3 (8.6)
Subsp bolletii	2 (5.7)
Not Determined	13 (37.1)
Other NTM species with MABC[b]	10 (28.6)
Mycobacterium avium complex	8 (80.0)
Mycobacteroides chelonae	1 (10.0)
Mycobacterium fortuitum	1 (10.0))
MABC symptom criteria	
Chronic cough	28 (80.0)
Fatigue	22 (62.9)
Weight loss (>5%)	11 (31.4)
Hemoptysis	9 (25.7)
Night sweats	5 (14.3)
Number of symptoms	
1–2	23 (65.7)
3–5	12 (34.3)
Radiologic findings	
Nodular	15 (42.9)
Tree-in-bud	17 (48.6)
Bronchonodular	13 (37.1)
Cluster of micronodules	10 (28.6)
Fibrocavitary	7 (20.0)
OMC duration, mo, median (IQR)[b]	8 (3.9 – 15.7)
Dissemination (prior to OMC initiation)	3 (8.6)
OMC loading dose (450mg PO once daily, day 1-2)	9 (25.7)
Tigecycline MIC, µg/mL, median (IQR), (*n* = 27)	0.25 (0.25 – 0.5)
Concomitant antibiotic(s) with OMC	
Amikacin (I.V.)[b]	15 (42.9)
Imipenem (I.V.)[b]	15 (42.9)
Clofazimine	15 (42.9)
Amikacin (inhaled)	15 (42.9)
Azithromycin	13 (37.1)
Linezolid/tedizolid	12 (34.3)
Clarithromycin	2 (5.7)
Ethambutol	2 (5.7)
Cefoxitin	2 (5.7)
Moxifloxacin/levofloxacin	2 (5.7)
Rifabutin	1 (2.9)

[a]Data reported as n (%) unless otherwise specified.
[b]BMI, body mass index; MABC, *Mycobacterium abscessus* complex; NTM, non-Tuberculous mycobacterium; OMC, omadacycline; I.V, intravenous.

Methods. A retrospective study was carried out across 12 US medical institutions from 1/2018-4/2023 to examine the clinical outcomes, and tolerability of OMC treatment for pulmonary MABC. Patients aged ≥ 18 years who were treated with OMC for ≥ 3 months were included. The primary outcome was clinical success at 3, 6, and 12 months. The secondary outcomes were sputum culture conversion rate, adverse effects, and clinical success by subspecies and macrolide susceptibility.

Table 2: MABC macrolide susceptibility

	Functional Erm Gene Present (n/N)	Macrolide Resistance by AST* (n/N)	Any phenotypic or genotypic resistance (n/N)	No information available (n/N)
Subsp. *abscessus* (n=17)	6/6	7/7	13/17	4/17
Subsp. *massiliense* (n=3)	1/1	1/1	2/3	1/3
Subsp. *bolletii* (n=2)	0	1/2	1/2	0
Subsp. not determined (n=13)	5/6	3/6	8/13	1/13
All MABC (n=35)	12/35	12/35	24/35	6/35

*AST, Antimicrobial susceptibility tests

Results. Thirty-five patients were included in this analysis. Most patients were female (74.3%) and Caucasian (74.3%), with a median (IQR) age of 61 years (51–70). Subspeciation was performed for 22 isolates with predominant *M. abscessus* subspecies (77.3%). Moreover, coinfection with other NTM species was present in 28.6% of cases where *Mycobacterium avium* complex was present in 8 cultures. Sixty-eight percent of the MABC isolates were confirmed to be macrolide resistance; half (12/24, 50.0%) were evident by the presence of functional *erm* gene, while the other half by antimicrobial susceptibility (Table 3). Of the remaining isolates, 14% were macrolide-susceptible, while no information was reported in 17%. The median (IQR) treatment duration of OMC was 8 months (3.9 – 15.7). The most commonly co-administered antibiotics were intravenous amikacin, imipenem/cilastatin, inhaled amikacin and clofazimine with the same percentage (42.9%) (Table 1). Overall, MABC clinical success was observed in 71.4%, 89.7%, and 90.9% in 3-, 6- and 12 months, respectively (Table 3). Adverse effects reported in 34.3%. The most common side effects were gastrointestinal intolerance (25.7%) and hepatoxicity (11.4%), which led to drug discontinuation in 22.9%.

Table 3: Clinical success and microbiological outcomes[a]

	3 months (n/N)	6 months (n/N)	12 months (n/N)	Sputum Cx conversion (n/N)
All MABC[b]	25/35	26/29	20/22	17/23
By Subspecies				
Subsp. abscessus	11/17	12/13	7/9	10/12
Subsp. massiliense	2/3	2/3	2/2	2/2
Subsp. bolletii	2/2	1/1	1/1	0/1
Subsp. not determined	10/13	11/12	10/10	5/8
By macrolide resistance				
Macrolide-susceptible	4/5	4/4	4/4	0
Macrolide-resistant	17/24	15/20	13/15	14/14
Unknown	4/6	5/5	3/3	3/3

[a]Clinical success, defined as a composite of the absence of microbiological recurrence, clinician evaluated clinical improvement, OMC continuity (no switch for failure or adverse effect), and survival.
[b]MABC, *Mycobacterium abscessus complex*

Conclusion. OMC treatment showed clinical success in > 70% of patients with pulmonary MABC including patients with macrolide resistant strains for more than 3 months. However, larger studies are needed to validate the outcomes beyond 12 months.

Disclosures. **Kaylee E. Caniff, PharmD, BCIDP**, T2Biosystems: Honoraria **Michael J. Rybak, PharmD, PhD, MPH**, Abbvie, Melinta, Sionogi, Merck, T2Biosystems: Advisor/Consultant|Abbvie, Melinta, Sionogi, Merck, T2Biosystems: Grant/Research Support|Abbvie, Melinta, Sionogi, Merck, T2Biosystems: Speaker