An Unconventional Approach to Unrelenting Bugs

- Jacques du Passage (LSUHSC School of Medicine)
- Shelby MacRae (LSUHSC Department of Medicine, Section of Pulmonary and Critical Care)

Case Presentation

A 70-year-old female with past medical history of hypertension and non-cystic fibrosis bronchiectasis presented to clinic with increased dyspnea over the past 3 months. Five years prior, she completed 18 months of rifampin, ethambutol, and azithromycin for a *Mycobacterium avium* complex (MAC) infection. Two years prior, *Mycobacterium abscessus* complex (MABC) was isolated from her sputum but not treated due to absence of clinical symptoms. CT demonstrated mucous plugging, diffuse tree-in-bud nodularity, and bronchiectasis. The patient's sputum cultures grew MAC and MABC, which showed macrolide resistance in the MABC but sensitivity in the MAC. Due to progressive imaging changes and symptoms, treatment was initiated. Per patient preference, parenteral therapy was avoided, opting for a largely oral, novel, five-drug, combination therapy. This approach involved azithromycin (250 mg/day), clofazimine (100 mg/day), omadacycline (300 mg/day), ethambutol (800 mg/day), and amikacin liposome inhalation suspension (ALIS) (nebulized, 590 mg/day). Following initiation, the patient achieved successful sustained culture clearance (3 consecutive negative cultures) after 3 months of therapy, and treatment was discontinued after 14 months. The patient's symptoms improved and imaging showed interval improvement in nodular and tree-in-bud opacities. No recurrence has been observed 18 months following treatment discontinuation, and symptoms have remained well controlled.

Discussion

This case demonstrates successful treatment of a challenging coinfection using an unconventional, patient-centered approach. Nontuberculous mycobacterial (NTM) infections are most often seen in patients with structural lung disease and are becoming increasingly common in patients with bronchiectasis [1]. They pose significant challenges in treatment, particularly when multiple organisms are present, with rates of successful MABC treatment around 34%, when macrolide resistant [2]. Because treatment of NTM lung disease (NTM-LD) is prolonged and associated with substantial toxicity, shared-decision making strategies are essential. In this case, the patient's strong preference to avoid parenteral treatment led to selection of a novel five-drug combination therapy that was informed by, yet deviated from, guideline-based therapy [3]. The regimen combined agents with activity across both organisms. Azithromycin and ethambutol targeted MAC, omadacycline provided predominant activity against MABC, and ALIS and clofazimine offered broader coverage against both organisms to successfully treat this coinfection. While omadacycline is not currently FDA approved for treatment of MABC, preliminary data from a phase II, double blind, randomized-controlled trial have demonstrated promise for its use in this setting [4]. This case, in addition to related cases [5,6], further supports its role as a potential emerging treatment of MABC, though larger prospective studies are needed to define optimal dosing, duration, and drug combinations.

References

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