# Opportunistic Infections: Disseminated Mycobacterium Avium Complex (dMAC)

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#### **Learning Objectives:**

- 1. Recognize the most common clinical manifestations of disseminated mycobacterium avium infection (MAC) and understand how to make the diagnosis.
- 2. Learn the current treatment guidelines for disseminated MAC and how to monitor the response to therapy.
- 3. Understand the current guidelines for primary and secondary prophylaxis against disseminated MAC in patients with HIV/AIDS.

**Case 1:** Mr. C is a 48 year old man with history of HIV/AIDs who presents to clinic to reestablish care. He reports that he has not been on ARVs for the past 2 years due to insurance issues and has not been seen by a medical provider since then. He complains of a 40 pound weight loss over the past year, as well as several weeks of intermittent fevers, night sweats, poor appetite, and fatigue. He denies any rash, cough, vomiting, or diarrhea. He has not been taking any medications. Physical exam reveals a thin man who appears older than his stated age. His exam is otherwise unremarkable. Labs are notable for a CD4 count of 2 cells/mm^3 and an HIV viral load of 360,000 copies/ml. He is also noted to have a new mild anemia. He is admitted to the hospital where extensive infectious work-up reveals blood cultures growing mycobacterium avium complex (MAC).

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Qι	nestions:				
1.	How is disseminated MAC acquired and what are the risk factors for disease?				
2.	What are the most common clinical manifestations of disseminated MAC disease?				

3. How is the diagnosis of dMAC made?

4	What are the	current recomn	nendations for	treatment of	f dMAC?
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**Case continued:** The patient is started on clarithromycin 500 mg PO BID and ethambutol 15 mg/kg PO daily for disseminated MAC. He is also started on trimethoprim-sulfamethoxazole for PCP prophylaxis. The patient is discharged and returns to you two weeks later for follow up. He states that he is no longer having fevers or night sweats but does complain of persistent fatigue and poor appetite. He asks you how long he will need to remain on treatment for.

5. What type of monitoring for response to therapy should be done?

- 6. What is the recommended duration of therapy?
- 7. When should anti-retroviral treatment (ART) be initiated in this patient?

**Case 2**: Mr. F is a 60 year old man with recently diagnosed HIV/AIDS with a CD4 count of 17 cells/ mm<sup>3</sup>. After a thorough work-up he is ruled out for active opportunistic infections. He is started on ART after extensive counseling, as well as Bactrim for prophylaxis against toxoplasmosis and PCP. Given his low CD4 count, you are also concerned about dMAC prophylaxis.

8. What are the indications for primary prophylaxis against disseminated MAC? What are the preferred drugs for primary prophylaxis?

## 9. When can primary prophylaxis against dMAC be discontinued?

## **Recommended Reading**

"Disseminated Mycobacterium avium complex Disease". Guidelines for the Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents. AIDS Info. Last updated 5/7/13. <a href="https://aidsinfo.nih.gov/guidelines/html/4/adult-and-adolescent-oi-prevention-and-treatment-guidelines/326/mac">https://aidsinfo.nih.gov/guidelines/html/4/adult-and-adolescent-oi-prevention-and-treatment-guidelines/326/mac</a>

#### **Additional References**

- 1. Benson CA, Williams PL, Currier JS, et al. A prospective, randomized trial examining the efficacy and safety of clarithromycin in combination with ethambutol, rifabutin, or both for the treatment of disseminated Mycobacterium avium complex disease in persons with acquired immunodeficiency syndrome. *Clin Infect Dis.* Nov 1 2003;37(9):1234-1243. Available at <a href="http://www.ncbi.nlm.nih.gov/pubmed/14557969">http://www.ncbi.nlm.nih.gov/pubmed/14557969</a>
- 2. Mandell, Douglas and Bennett's Principles and Practices of Infectious Diseases, 8th edition. Churchill Livingstone; 2015. 253, 2832-2843. Available online <a href="https://www.clinicalkey.com/#!/content/book/3-s2.0-B9781455748013002538">https://www.clinicalkey.com/#!/content/book/3-s2.0-B9781455748013002538</a>