

X. In children with HIV infection with disseminated MAC and continued immunosuppression, does secondary prophylaxis prevent recurrence of infection? - Children with a history of disseminated MAC and continued immunosuppression should receive lifelong prophylaxis to prevent recurrence (strong, low). Secondary prophylaxis typically consists of continued multidrug therapy used in treatment of disease. X. In children with HIV infection with disseminated MAC and sustained CD4 recovery, is discontinuation of secondary prophylaxis associated with risk of relapse? - Some experts recommend discontinuation of therapy in children with HIV infection who meet <u>all</u> of the following criteria: - Aged ≥ 2 years and have completed ≥ 12 months of treatment for MAC; - Remain asymptomatic for MAC; - Receiving stable ART (i.e., ART not requiring change for virologic or immunologic failure); - Have sustained (≥ 6 months) CD4 count recovery well above the age-specific target for initiation of primary prophylaxis (i.e., as in adults, >100 cells/mm³ for children aged ≥ 6 years [strong, low] and >200 cells/mm³ for children aged 2 to <6 years [weak, very low]).
Rating System Strength of Recommendation: Strong; Weak Quality of Evidence: High; Moderate; Low; or Very Low

Epidemiology

Mycobacterium avium complex (MAC) refers to multiple related species of nontuberculous mycobacteria (NTM) (e.g., *Mycobacterium avium*, *Mycobacterium intracellulare*, and *Mycobacterium paratuberculosis*) that are widely distributed in the environment. Recent surveillance data have shown an increasing rate of MAC infection in some regions within the United States.¹ Comprehensive guidelines on the diagnosis, prevention, and treatment of nontuberculous mycobacterial diseases were published in 2007.² These guidelines highlight the tremendous advances in mycobacteriology laboratory methods that have expanded the number of known NTM species from 50 in 1997 to 125 in 2006. In the United States, NTM infections outnumber *Mycobacterium tuberculosis* infections and have become an important cause of pulmonary morbidity in adults.³ In children, it appears that the overall prevalence of NTM is increasing over time.^{4,5} Disseminated NTM is rare in children who are immunocompetent.

Before the advent of antiretroviral therapy (ART), MAC was second only to *Pneumocystis jirovecii* pneumonia among opportunistic infections (OIs) in children with HIV infection in the United States. With the availability of ART, the incidence of MAC has greatly decreased from 1.3 to 1.8 episodes per 100 person-years in the pre-ART era to 0.14 to 0.2 episodes per 100 person-years in the ART era.^{6,7} MAC is ubiquitous in the environment and presumably is acquired by routine exposures through inhalation, ingestion, or inoculation.⁸ A population-based study of adults and children in Florida associated soil exposure, black race, and birth outside the United States with MAC infection.⁹ Respiratory and gastrointestinal (GI) colonization can act as portals from which infection can disseminate.¹⁰

MAC can appear as isolated lymphadenitis in children with and without HIV. Disseminated infection with MAC in pediatric HIV infection rarely occurs during the first year of life; its frequency increases with age and declining CD4 T lymphocyte (CD4) cell count but can occur at higher CD4 counts in younger children with HIV than in older children or adults with HIV. MAC is a recognized complication of advanced immunologic deterioration among children with HIV infection.^{8,11,12}

Clinical Manifestations

Respiratory symptoms are uncommon in children with HIV infection who have disseminated MAC, and isolated pulmonary disease is rare. Early symptoms can be minimal and may precede mycobacteremia by several weeks. Symptoms commonly associated with disseminated MAC infection in children include persistent or recurrent fever, weight loss or failure to gain weight, sweats, fatigue, persistent diarrhea, and