Cough in the Immunocompromised Host
ACCP Evidence-Based Clinical Practice Guidelines

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Background: Patients with compromised immune systems often complain of chronic cough. While these patients are susceptible to opportunistic infections that should be considered in the evaluation, common causes should also be investigated.


Results: Patients with compromised immune systems and chronic cough usually have the same disorders causing cough as in the general population. However, depending on the nature and severity of the immune defect, they may also have a variety of infections not usually encountered in immunocompetent hosts.

Conclusion: In immunocompromised patients presenting with cough, the initial diagnostic evaluation should be the same as that for healthy hosts. However, when these diagnoses have been excluded, opportunistic infections should be considered.

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Key words: AIDS; HIV; hypogammaglobulinemia; immunocompromise; neutropenia

Since the publication of the first clinical practice guideline for managing cough as a defense mechanism and as a symptom in 1998, little has been published that expands our knowledge of diagnosing and treating cough in the immunocompromised host. A MEDLINE search was conducted using the terms “cough,” “immunocompromise,” “HIV,” “AIDS,” “neutropenia,” and “corticosteroids,” from 1966 through the end of 2003. Although chronic cough is a common symptom in patients with compromised host defenses, the committee is aware of only one study that has evaluated the etiology of chronic cough in an immunocompromised group of patients in a systematic fashion. In this retrospective analysis of 26 predominantly gay men with AIDS and chronic cough, a diagnosis was established in 21 (81%). Seventeen men had a lower respiratory infection, 5 had Kaposi sarcoma, and 3 had sinusitis. However, the study design excluded patients whose cough was deemed unlikely to be related to HIV infection and who had Pneumocystis pneumonia. In addition, the investigators did not use a diagnostic algorithm that considered upper airway cough syndrome due to rhinosinus diseases (previously referred to as postnasal drip syndrome), asthma or GERD as diagnostic considerations, precluding conclusions about the prevalence and incidence of these common disorders in their cohort.

Acute cough is very common in persons with HIV infection and AIDS, and in most it can be attributed to the same disorders that cause cough in the immunocompetent population. In a prospective multicenter investigation of a cohort of persons with HIV infection who did not have AIDS at the time of study enrollment, the most common respiratory disorders diagnosed in the first 18 months were upper respiratory infection (33.4%), acute bronchitis (16%), and acute sinusitis (5.3%). Only 4.8% of patients had bacterial pneumonia and 3.9% had Pneumocystis pneumonia.
The nature and severity of the immune defect must always be considered in the evaluation of patients with suspected opportunistic infection. For example, patients with prolonged neutropenia are predisposed to developing not only bacterial sinus and lung infections, but also invasive fungal infection infections, including pneumocystosis, and organ transplant recipients are prone to disorders that cause cough related to infection and rejection. In HIV-infected persons, the incidence of specific pulmonary disorders correlates with threshold levels of CD4+ lymphocytes, which is still the best surrogate marker for immune function. Thus, patients with CD4+ lymphocyte counts of > 200 cells/µL and who appear well are very unlikely to have Pneumocystis pneumonia and other opportunistic infections, and chronic cough in these patients is far more likely to be caused by the same disorders as in the general population. Opportunistic infections should be suspected in HIV-infected persons, even when chest radiograph findings are normal when CD4+ lymphocyte counts are < 200 cells/µL, or when CD4+ lymphocyte counts are > 200 cells/µL and patients present with unexplained fever, weight loss, or thrush. Geographic considerations should also be considered in the differential diagnosis of pulmonary disorders in immunocompromised patients. For example, the intersection of the AIDS epidemic with endemic tuberculosis in Asia and Africa has made tuberculosis the leading cause of death in people with HIV infection worldwide. Patients with AIDS and other immunosuppressive disorders who live in areas with endemic fungi are predisposed to invasive infection with those organisms.

**SUMMARY OF RECOMMENDATIONS**

**1. In patients with immune deficiency, the initial diagnostic algorithm for patients with acute, subacute, and chronic cough is the same as that for immunocompetent persons, taking into account an expanded list of differential diagnoses that considers the type and severity of immune defect and geographic factors.** Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A

**2. In HIV-infected patients, CD4+ lymphocyte counts should be used in constructing the list of differential diagnostic possibilities potentially causing cough.** Level of evidence, low; benefit, substantial; grade of recommendation, B

**REFERENCES**


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