**Mycobacterium avium** Complex 
Lung Disease and Women 
Now an Equal Opportunity Disease

Initial recognition of *Mycobacterium avium* complex (MAC) lung disease in HIV (−) patients first occurred because of its similarity to tuberculosis. The hallmark was upper lobe cavitary disease. Sputum samples contained a large number of organisms on acid-fast smear and culture, and excretion of the organisms was continuous. In multiple studies of disease treatment beginning in 1979,1,4 male subjects represented 71 to 100 percent of the patients and most were heavy smokers with underlying chronic obstructive lung disease.

Not all patients with positive sputum cultures for MAC had evidence of cavitation, however. The radiographic features in these patients were considered nonspecific and were generally considered to relate to other pre-existing diseases (usually bronchiectasis). The number of organisms on acid-fast smear and sputum culture was generally lower than with cavitary disease, and excretion of the organisms was often intermittent. The concept of "colonization" was introduced to explain these findings, although no data were really provided other than circumstantial to demonstrate that tissue invasion had not taken place. The site of the "colonization" was not defined: endo-bronchial, oral, pharyngeal, etc. The use of enhanced pulmonary drainage using therapies designed to improve the condition of patients with bronchiectasis appeared to decrease sputum excretion of the organism, at least temporarily.5 This approach was not unrealistic as the chest radiographs and clinical symptoms most mimicked bronchiectasis.

Prince et al6 in 1989 were one of the first groups in print to call attention to the clinical features and long-term followup of patients with this nontuberculous form of disease. Another feature of these patients was the absence of underlying lung disease, which was the selection factor used by these authors to choose their 21 cases. Nineteen of 21 (90 percent) patients had interstitial/nodular disease on chest x-ray film, and 17 of 21 (81 percent) of the patients were women. The majority of patients (13 of 21) were nonsmokers, with the remainder being exsmokers with a mean smoking history of < 10 pack years. The benign nature of this form of infection was dispelled by the finding that 4 of 18 patients with at least 1 year of followup died of their MAC lung disease.

Reich and Johnson4 reported on a series of patients with MAC lung disease identified over a 12-year period. Among these 29 patients were 6 patients (21 percent of the total) who presented with isolated lingula or middle lobe disease.7 The patients were all women, and their demographics (including the absence of underlying diseases including smoking) were similar to the patients in the report of Prince et al.6 All of the patients had noncavitary disease, and all had focal bronchiectasis in the area of disease. The authors referred to this clinical presentation as the Lady Windermere syndrome after the character in *Lady Windermere's Fan* whose fastidious character might have included cough suppression which in turn might have contributed to retained secretions and focal disease in the less-well-drained lingula and right middle lobe of the lung.

Although the clinical description of this second form of MAC lung disease now seemed well established, radiographic characterization had received much less detailed study, especially with the chest computerized tomography (CT) scan which might help in determining the number and incidence of bronchiectasis in these patients. In a retrospective study of 62 patients with chest CT scans and positive respiratory cultures for MAC within 1 month of the radiographic study, Hartman et al found that 40 patients (66 percent) had bronchiectasis, and 39 of the patients had nodular type infiltrates. All 35 patients with small nodular lesions were multiple, almost all were < 5 mm in size, and involved at least one of the same lobes with the bronchiectasis in all cases. These 35 patients generally had no significant underlying disease, and 29 (83 percent) were women.

The radiographic study by Swensen et al in this issue of *Chest* (see page 49) (the same authors who did the previous study) helps to better delineate the prognostic value of the radiographic findings of bronchiectasis and associated lung nodules relative to MAC lung disease (see page 49). The authors reviewed the chest CT scans and clinical histories of 100 consecutive patients with a chest CT scan diagnosis of bronchiectasis. A total of 24 patients had bronchiectasis and multiple lung nodules, of whom 22 (92 percent) were women. None had a significant underlying disorder, although the number of smokers or nonsmokers was not given. Again the bronchiectasis and lung nodules generally occurred in the same lobe of the lung. Of the patients with mycobacterial cultures (mostly sputums), 8 of 15 (53 percent) with nodules and only 2 of 48 (4 percent) without nodules had positive MAC cultures.

These studies clearly define at least two pulmonary syndromes produced by MAC in the HIV (−) patient. One is upper lobe cavitory lung disease that mimics tuberculosis. Approximately 80 percent of patients are male smokers with chronic obstructive lung disease. The second syndrome is small nodular/interstitial disease associated with cylindrical bronchiectasis. Approximately 80 percent of these patients are women with a negative or minimal smoking history and no apparent underlying lung disease. The increase in
A New Look at Dopamine and Norepinephrine for Hyperdynamic Septic Shock

In the June, 1993 issue of Chest, Martin and coworkers (103:1826) have addressed an important therapeutic challenge met daily by physicians caring for severely ill patients being treated for sepsis in a critical care setting. A significant percentage of patients with life-threatening sepsis will exhibit the hyperdynamic state as evidenced by a suboptimal blood pressure, a reduction in peripheral vascular resistance, and an increase in cardiac index. The current priorities of care in this setting include correction of red blood cell deficits to augment oxygen-carrying capacity and restoration of effective plasma volume to restore perfusion pressure and thus organ perfusion, especially renal circulation. When appropriate blood and fluid replacement provide inadequate restoration of perfusion, inotropic support is added. Most commonly, the inotropic agent first called for is dopamine, which is purported to increase perfusion pressure by enhancing cardiac contractility while protecting critical organs such as the kidney. The authors have challenged this routine practice.

This well-planned and meticulously implemented prospective randomized study compares the effects of dopamine (2.5 to 25 \( \mu \)g/kg/min) with those of norepinephrine (0.5 to 5.0 \( \mu \)g/kg/min) in meeting reasonable predefined treatment goals. The definition of hyperdynamic septic shock used to permit entrance into the randomization process is well accepted. The predefined end points of restoring perfusion pressure and oxygen delivery are universally accepted. Within this framework, the authors have shown a clear-cut superiority of norepinephrine in meeting these end points compared with dopamine. Only 31 percent of the patients (5 of 16) reached these predefined treatment goals with dopamine (10 to 25 \( \mu \)g/kg/min), whereas 93 percent (15 of 16) reached the same end points with norepinephrine infusion (1.0 to 5.0 \( \mu \)g/kg/min). A more impressive finding in this study was the observation that 10 of the 11 patients who did not fully respond to dopamine infusion at a dosage of 25 \( \mu \)g/kg/min did reach the predefined end points when norepinephrine was added to the infusion as part of their crossover implementation design. In contrast, the single patient who did not reach predefined end points with epinephrine infusion also failed to reach these end points when dopamine infusion was added. One patient in each group died of refractory septic shock within hours of the study after being found not fully responsive to the combination of both dopamine and norepinephrine infusions; this reflects the severity of the septic insult in these patients.