CT Virtual Bronchoscopy for Detecting Wegener Granulomatosis

To the Editor:

Summers and colleagues (January 2002)\(^1\) showed a beneficial method for detecting central airways involvement in patients with Wegener granulomatosis (WG). Indeed, CT virtual bronchoscopy (VB) has an advantage in visualizing stenosis of the airways over either CT scanning alone or bronchoscopy alone. The investigators applied the method to 11 patients with WG, however, they did not describe any detailed patient characteristics, including inflammatory activity, serologic values, the presence or absence of other affected organs, and previous or current treatment of these patients, except for disease duration. In addition, Summers and colleagues did not provide the outcomes for these patients who were enrolled in the study.

WG is a systemic disease of unknown origin that is characterized histologically by the presence of necrotizing granulomatous inflammation and vasculitis involving small arteries, veins, and capillaries. It most commonly affects the upper and lower respiratory tracts, and the kidneys. Because a delayed confirmation of the diagnosis and initiation of the treatment may result in the patient requiring tracheotomy or hemodialysis, we rheumatologists must attempt to understand the disease activity by radiologic examination, urinalysis, and the titer of antineutrophil cytoplasmic antibodies as soon as possible. Recurrence is also quite common among patients with WG.\(^2\) A high rate of recurrence often compels us to continue administering immunosuppressive agents. However, the prolonged use of these agents may cause patients to experience irritable side effects.\(^3\)

Further studies are needed to demonstrate the contribution of VB to the improvement in the outcomes of WG patients or the prevention of disease recurrence, which are the most pivotal factors for patients with WG; before VB can be recognized as an efficient examining tool.

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Oxygen Therapy for Mitochondrial Myopathy

To the Editor:

We report on a physician-patient (C.H.W.) with a diagnosis of undifferentiated autoimmune disease, pancytopenia, and presumed mitochondrial dysfunction (no muscle biopsy performed). Retired on disability in 1995, she has severe exercise intolerance and was unable to perform instrumental activities of daily living and, at times, even basic activities of daily living, despite having no underlying cardiac or pulmonary disease. Additional symptoms suggestive of mitochondrial myopathy include marked dyspnea and quadriiceps pain with mild exercise. This quadriiceps pain becomes more severe immediately following long airplane trips, but can be significantly reduced by using oxygen while on the plane (purchased for individual use prior to take-off).

The presumed mitochondrial dysfunction was diagnosed with exercise pulmonary function testing performed on room air and repeated 48 h later on supplemental oxygen (100%). The second exercise test used as the target heart rate the maximal heart rate attained during the testing done on room air. At rest, the baseline pyruvate level was 0.13 mmol/L (normal value, 0.00 to 0.08 mmol/L) and lactate level was 1.6 mmol/L (normal value, 0.5 to 2.2 mmol/L). With exercise, 4.34 min of a modified Bruce protocol to 4.5 metabolic equivalents (METs), the pyruvate level rose to 0.16 mmol/L and lactate level to 10.3 mmol/L. Table 1 displays relevant values for both exercise tests. Urine collected in the 24 h following each exercise test was positive for myoglobin.

As shown in Table 1, the anaerobic threshold and maximal heart rate were similar in both testing conditions. However, the total oxygen uptake (\(V_{\text{O}2}\)), minute ventilation, and METs were markedly improved with supplemental oxygen. Although lactic acid accumulation still occurred, it was substantially less than in the room air testing.

These data suggested that a trial of therapeutic oxygen might improve daily function. The patient has been using supplemental oxygen for exercise, in the car, while sleeping, and/or “not feeling well” for the past 18 months. She uses variable flow between 2 L/min and 6 L/min with a mask and concentrator device at home, or a demand-delivery system with nasal prongs and portable tanks. Her functional capacity has gradually improved, and her prednisone dose has been substantially decreased for the first time in 8 years. She can now drive around town, walk in a shopping mall, and