Questions About Adenosine Deaminase Testing and Drug Choice in an Unusual Presentation of TB

To the Editor:

We read with great interest the case report by Sergew et al (November 2009) wherein they reported a case of TB that presented in an unusual fashion as sepsis and ARDS. There are, in our opinion, a couple of issues to be answered.

First, although the authors have mentioned the role of adenosine deaminase (ADA) in ascitic fluid for the diagnosis of TB as the etiology in the discussion of the case report, we wonder why this simple bedside investigation was not done in the case described. ADA levels in ascitic fluid have been suggested as a useful, noninvasive screening test in the diagnosis of peritoneal TB. Although not diagnostic, ADA levels in serous fluids, when considered in collaboration with the clinical scenario, can guide the clinician to clinch an early diagnosis and start the required anti-TB therapy in time.

Second, the standard treatment regimen for a fresh case of TB consists of four drugs: isoniazid, rifampicin, pyrazinamide, and ethambutol. Use of potent second-line drugs such as quinolones and an aminoglycoside (amikacin in this case) at the initial phase is not recommended. Inadequate drug regimens promote the selection of drug-resistant strains, which magnify the threat of drug-resistant TB. As the incidence of multidrug-resistant TB increases throughout the world, judicious use of antitubercular therapy is recommended to keep the drug resistance to a minimum.

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REFERENCES


Correct Diffusing Capacity of Lung for Carbon Monoxide and Carbon Monoxide Transfer Coefficient in Considering Respiratory Function in Patients With Stable Anorexia Nervosa

To the Editor:

There is another explanation for the low diffusing capacity of the lung for carbon monoxide (DLco) values of patients with moderate-to-severe anorexia reported by Gardini Gardenghi and colleagues in CHEST (November 2009) other than “the progressive enlargement of peripheral lung units without relevant alveolar septa destruction.” Because DLco varies with hematocrit, and patients with anorexia nervosa often have anemia, it is particularly important to adjust predicted DLco and carbon monoxide transfer coefficient (Kco) for hematocrit, which was not done in their study.

The authors mistakenly refer to Kco as “lung diffusion capacity corrected for alveolar ventilation.” In fact, Kco = DLco/VA, where VA is the alveolar volume, which equals the volume of distribution of the tracer gas (usually helium) minus predicted dead space. Kco changes much more with lung volume than does DLco, so Kco does not “correct for VA.”

Both DLco and Kco have known changes with lung volume, as would be expected with membrane conduction (DM) varying linearly with VA and blood conduction (θVC) not changing. Because the surface area for diffusion is less at a lower lung volume, DLco decreases with lung volume. Because DLco decreases less than lung volume, DLco/VA or Kco increases at lower lung volumes. One can correct DLco (DACO) and Kco (Kaco) for VA. The predicted DACO = predicted DLco (0.58 + 0.42 VAtlc) and Kaco = Kco (0.42 + 0.58/[VA/VA[tlc]]), where VA is the measured VA and VAtlc is the predicted VA at total lung capacity (predicted total lung capacity [TLC] minus predicted dead space). Percent predicted DACO equals percent predicted Kaco and provides a good indication of the lung’s diffusion correcting for lung volume.

The data demonstrate a problem with the European Community for Coal and Steel equations for predicted Kco. For control subjects, DLco was 95% predicted and TLC 105% predicted, yet Kco was only 82% predicted. This occurred because of inconsistent equations for predicted Kco and DLco. Instead, predicted Kco (DLco/VA) should be calculated as predicted DLco divided by predicted VA, with predicted VA equal to predicted TLC minus predicted dead space. Because their patients had normal TLC and should not have elevated dead space, their predicted Kco should nearly equal predicted DLco.

The authors should recalculate their data and report DLco and Kco as percent predicted, adjusting predicted values for hemoglobin. They should also report percent predicted VA. My guess is that anemia will explain some, but not all, of the reduction in DLco. Finally, they should correct DLco and Kco for lung volume, by reporting DACO (DLco as percent predicted adjusted both for hemoglobin and for VA) and Kaco. By adjusting for hemoglobin and properly correcting DLco for lung volume (DACO), their study can provide further evidence for an impairment of gas exchange in patients with moderate-to-severe anorexia nervosa.

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