Tailoring Diagnosis and Management of Pericardial Disease to the Epidemiological Setting

To the Editor: We read the comprehensive review "Pericardial Disease: Diagnosis and Management" by Khandaker et al[1] with interest. We would like to highlight certain aspects of tuberculous pericarditis that were not mentioned in the review but that we consider to be relevant to most patients with pericarditis who live in developing countries where tuberculosis (TB) is endemic. Developing countries harbor 80% of the population of the world. In countries that have a high burden of infection with human immunodeficiency virus (HIV), such as South Africa, tuberculous pericarditis accounts for 50% and greater than 90% of large pericardial effusions in HIV-negative and HIV-positive patients, respectively.[2] It is an important cause of cardiac morbidity and mortality and presents specific diagnostic and therapeutic challenges.[3,4]

The tuberculin skin test is not a reliable test in this epidemiological setting because of the background prevalence of TB, mass Bacille Calmette-Guérin immunization, and the likelihood of cross-sensitization from environmental mycobacteria.[5] In a contemporary series in South Africa, a positive tuberculin skin test result of 10 mm or greater had a sensitivity, specificity, positive predictive value, and negative predictive value of 89%, 56%, 82%, and 69%, respectively.[6] This is relevant despite the high prevalence of TB as a cause of large pericardial effusions because, when the diagnosis is wrong in those treated on a presumptive basis, there is a 5-fold increased risk of death.[4] A diagnosis can sometimes be established by demonstrating TB elsewhere, such as in the sputum, but these are insensitive methods. Even invasive methods to examine the pericardium or pericardial fluid directly are insensitive with respect to microscopic examination, culture, and polymerase chain reaction, resulting in the development of diagnostic algorithms that use tests of pericardial fluid such as assays for adenosine deaminase, interferon γ, or lysozyme, which have high sensitivities and specificities as indirect tests of TB.[3,6] At the University of Cape Town, routine tests of pericardial fluid include assays for adenosine deaminase, lactate dehydrogenase, and protein to differentiate between an exudative and transudative process, in addition to those listed by Khandaker et al.

Despite these efforts, the diagnosis sometimes remains a presumptive one. In areas with a high prevalence of TB, a pericardial effusion is often considered to be tuberculous in origin unless an alternative diagnosis is apparent. Furthermore, treatment often needs to be commenced before a bacteriological diagnosis is established. This approach does not apply in regions where the prevalence of TB is low. Therefore, the diagnostic and therapeutic approach to large pericardial effusion is dependent largely on the background prevalence of TB in the community of the patient.[7]

Faisal F. Syed, BSc(Hons), MBChB, MRCP
Mayo Clinic
Rochester, MN

Mpiko Ntsekhe, MD, FCP(SA)
Bongani M. Mayosi, DPhil, FCP(SA)
Groote Schuur Hospital and University of Cape Town
Cape Town, South Africa

1. Khandaker MH, Espinosa RE, Nishimura RA, et al. Pericardial disease: diagnosis and management. *Mayo Clin Proc*. 2010;85(6):572-593.
2. Reuter H, Burgess LJ, Doubell AF. Epidemiology of pericardial effusions at a large academic hospital in South Africa. *Epidemiol Infect*. 2005;133(3):393-399.
3. Mayosi BM, Burgess LJ, Doubell AF. Tuberculous pericarditis. *Circulation*. 2005;112(23):3608-3616.
4. Mayosi BM, Wiysonge CS, Ntsekhe M, et al. Mortality in patients treated for tuberculous pericarditis in sub-Saharan Africa. *S Afr Med J*. 2008;98(1):36-40.
5. Ng TT, Strang JI, Wilkins EG. Serodiagnosis of pericardial tuberculosis. *QJM*. 1995;88(5):317-320.
6. Reuter H, Burgess L, van Vuuren W, Doubell A. Diagnosing tuberculous pericarditis. *QJM*. 2006;99(12):827-839.
7. Syed FF, Mayosi BM. A modern approach to tuberculous pericarditis. *Prog Cardiovasc Dis*. 2007;50(3):218-236.

doi:10.4065/mcp.2010.0377

In reply: Syed and colleagues make very interesting and important points on tuberculous pericarditis that were not mentioned in our review article. In developed countries, the incidence of tuberculous pericarditis has declined substantially during the past half century; meanwhile, in developing countries, tuberculous pericarditis is still endemic, as outlined by Syed and colleagues. Because of the paucity of cases of tuberculous pericarditis at our institution, our clinical experience in this area is limited and our review was aimed at addressing major diagnostic and management dilemmas in pericardial disease seen in our practice. Syed and colleagues point out that routine tests of pericardial fluid at the University of Cape Town include assays for adenosine deaminase, lactate dehydrogenase, and protein to differentiate between an exudative and transudative process. In areas where the prevalence of TB is high, pericardial effusions are likely to be tuberculous in origin and treatment is started before a bacterial diagnosis is made. We are in agreement that diagnostic testing and management of the various pericardial syndromes need to be tailored to the epidemiological profiles of a particular geographic region. We thank Syed and colleagues for their important contribution on diagnostic and management dilemmas of tuberculous pericarditis in developing countries that were not addressed by our review.

Masud H. Khandaker, MD, PhD
Jae K. Oh, MD
Mayo Clinic
Rochester, MN

doi:10.4065/mcp.2010.0506