Tuberculous pericarditis and HIV infection in Africa

In this issue of *SAMJ*, Mayosi and colleagues[1] report the results of an observational study on the mortality rate and its predictors in patients with a presumptive diagnosis of tuberculous pericarditis in sub-Saharan Africa. By enrolling patients with presumed tuberculous pericarditis from 15 referral hospitals in Cameroon, Nigeria and South Africa, and not insisting on gold-standard diagnostic criteria, the investigators have managed to enroll 185 patients within a 6-month period between March and October 2004. Patients were eligible for enrolment if the attending physician felt sufficiently confident with the diagnosis of tuberculous pericarditis to commence antituberculosis treatment, and the management of each patient was at the discretion of the attending physician, in keeping with the observational nature of the study. In the majority of patients, HIV status was based on serological testing for HIV, but due to the fact that, at the time of the study, voluntary and confidential testing for HIV was not always offered at the participating medical institutions, the investigators included the category of suspected HIV infection based on clinical grounds, and classified each patient as either having evidence of 'clinical HIV disease' or 'no clinical HIV disease', without regard to the HIV serological status of the patient. The HIV assessment was left to the discretion of the collaborating physician, and no criteria were specified.

This approach may lack some scientific rigour but it allowed rapid enrolment of all suspected cases and reflects the real-life experience of clinicians across Africa who do not always have access to diagnostic facilities and who do not find it difficult to diagnose tuberculous pericarditis on clinical grounds, however difficult it may be to confirm the diagnosis in the laboratory.[2,3] Using Cox regression, they assessed the effect of baseline clinical and therapeutic characteristics on mortality during a 6-month period of follow-up. In a group of 174 patients (median age 33; range 14 - 87 years), the overall mortality rate was 26%, and it was significantly higher in patients who had clinical features of HIV infection than in those who did not (40% v. 17%, p=0.001). Independent predictors of death during follow-up were: (*i*) a proven non-tuberculosis final diagnosis (hazard ratio (HR) 5.35, 95% confidence interval (CI) 1.76 - 16.25), (*ii*) the presence of clinical signs of HIV infection (HR 2.28, CI 1.14 - 4.56), (*iii*) coexistent pulmonary tuberculosis (HR 2.33, 1.20 - 4.54), and (*iv*) older age (HR 1.02, CI 1.01 - 1.05). There was also a trend towards an increase in death rate in patients with haemodynamic instability (HR 1.80, CI 0.90 - 3.58) and a decrease in those who underwent pericardiocentesis (HR 0.34, CI 0.10 - 1.19).

The strength of the study is that it reflects what clinicians experience in the field and what they perceive to be HIV- and tuberculosis-related deaths. This experience may differ substantially from statistics captured by national tuberculosis control programmes. This study by Mayosi and colleagues[1] demonstrates that a presumptive diagnosis of tuberculous pericarditis is associated with a high mortality in sub-Saharan Africans, and calls for attention to rapid aetiological diagnosis of pericardial effusion and treatment of concomitant HIV infection as this may reduce the high mortality associated with the disease.

Tuberculosis is an ancient disease, with evidence of spinal TB described in Neolithic man and clear evidence of TB bone lesions found in mummified remains from ancient Egypt. Initial infection is usually via the pulmonary route, following inhalation of an inoculum of organisms within tiny aerosol droplets, predominantly produced by adults with cavitary TB. Extrapulmonary tuberculous disease occurs as the result of contiguous spread of tubercle organisms to adjoining structures such as pleura or pericardium, or by lymphohaematogenous spread during primary or chronic infection. HIV infection increases the dissemination of TB particularly as the CD4 cell count declines below 200 cells/µl. Pericardial effusion is a frequent clinical finding in HIV-seropositive patients coinfected with TB in a variety of global settings.[4-6]

Tuberculous pericarditis most commonly results from direct extension from contiguous mediastinal and hilar lymph nodes or by lymphohaematogenous spread as part of disseminated TB. The clinical presentation of tuberculous pericarditis is variable and includes acute pericarditis with or without effusion, cardiac tamponade, silent large pericardial effusion with a relapsing course, toxic symptoms with persistent fever, acute constrictive pericarditis, subacute constriction, or effusive-constrictive or chronic constrictive pericarditis.[3,7] The mortality rate in untreated acute effusive tuberculous pericarditis approaches 85%.[7] The goal of therapy for tuberculous pericarditis is to prevent death due to tamponade, to relieve the acute symptoms of cardiac compression, and to prevent progression from the effusive to the constrictive stage, in which a fibrotic and calcified pericardium entraps the heart.[8-10] The management of HIV coinfection is of utmost importance and should include cotrimoxazole preventive therapy and provision of highly active antiretroviral therapy (HAART). Standard management of pericardial effusion includes pericardiocentesis either by echocardiographically guided closed pericardiocentesis[8,10] or by surgical fenestration.[5,11] Recommended antituberculosis chemotherapy for pericardial TB is the same as for pulmonary TB.[8,11] The use of adjunctive corticosteroid therapy is controversial.[8,10,12]

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