TUBERCULOSIS IN THE INTENSIVE CARE UNIT

Charles Feldman
Department of Medicine, University of the Witwatersrand, Johannesburg, South Africa

INTRODUCTION

Tuberculosis is now recognised to be the leading cause of death associated with a single identifiable infectious pathogen in the world (1). According to estimates of the World Health Organisation, which declared tuberculosis to be a global emergency in 1993, there were nearly 2 billion people in the world infected with this micro-organism, with 8 million new cases of active disease and more than 2 million deaths in 1997 (2). 95% of cases of tuberculosis and 98% of tuberculosis deaths occur in developing countries. Tuberculosis has been estimated to cause 7% of all deaths and 26% of preventable deaths in the developing world (1). Most deaths occur in young adults between the ages of 15 and 40 years, during their most economically productive years (2).

Tuberculosis is a disease of the poor and disadvantaged and is therefore concentrated predominantly in the developing world and in poor areas of major cities in the developed world. Although the greatest numbers of cases occur in certain parts of Southeast Asia, the highest incidence of cases is found in sub-Saharan Africa. Nine of the 10 countries with the highest incidence of tuberculosis are in Africa (3). Countries with the highest burden in sub-Saharan Africa include Nigeria, Kenya, Zimbabwe, Tanzania, Uganda, the Democratic Republic of Congo and South Africa (2). In the African region, the estimated incidence is 259 per 100,000 population, compared with 50 per 100,000 in Europe and America (3). This review focuses on severe tuberculosis infection in the developing world.
RESURGENCE OF TUBERCULOSIS

Whereas in the 1960s and 1970s tuberculosis appeared to be decreasing, from the mid-1980s tuberculosis began increasing in incidence worldwide. The reasons for this increase were said to occur in three “epidemics”. The first epidemic was the association of tuberculosis with general factors such as poverty, malnutrition, a decrease in socio-economic circumstances, homelessness, decline in tuberculosis control programs, poor compliance with treatment regimens, decreased funding for tuberculosis programs, and civil conflict (2,4).

The second epidemic, occurring particularly in Africa, was the association of tuberculosis with human immuno-deficiency virus (HIV) infection (1,2,4). HIV infection is the greatest risk factor for the progression of latent TB infection to active disease (1). The risk of developing tuberculosis in HIV-seropositive patients is between 3-8% annually, with a 50% lifetime risk (2).

Gachot and co-workers were among the first to describe critical illness in HIV-seropositive patients with tuberculosis, which now appears to be increasing worldwide (5,6). They described 12 cases of severe disseminated tuberculosis infection in patients who were HIV-seropositive, 8 of whom had diffuse pulmonary involvement, which was responsible for the development of acute respiratory failure. Seven of these cases required mechanical ventilation. Seven patients in total died.

The association of HIV infection with tuberculosis in adults has been called the “new tuberculosis” since many of these patients present with unusual or atypical features. The interaction between TB and HIV infection is complex (7,8). It does appear that tuberculosis increases viral replication in HIV-infected individuals and HIV-infected patient who develop tuberculosis appear to have a shortened survival (2).

The third epidemic has been that of multidrug resistant (MDR) tuberculosis, occurring especially in countries such as the United States, particularly in association with intravenous drug abuse, but for which conditions do exist throughout the word (9). A particular concern with drug resistant tuberculosis has been the possibility of greater risk of transmission to other individuals, including nosocomial transmission to health care workers (10). The global extent of drug resistant tuberculosis has not been well defined (11). In some countries, such as the former