

Report

HIV infection in patients with tuberculosis in Baghdad (1996–98)

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SUMMARY A three-staged prospective study involving 430 patients with tuberculosis was conducted at the Tuberculosis Institute, Baghdad during 1996-98. Of the 430 patients, 270 were males, 370 patients were diagnosed as pulmonary tuberculosis and 60 patients had extrapulmonary tuberculosis. Considering some risk factors for human immunodeficiency virus (HIV) infection, 11 patients had tattoos, 13 were prisoners and 5 were barbers. All the patients were tested for HIV infection and all were negative.

Introduction

Tuberculosis is recognized as a major complication of human immunodeficiency virus (HIV) infection [1–3]. Conversely, many reports have shown high rates of HIV infection in patients with tuberculosis in countries with HIV epidemics [4]. Previous studies have found both HIV-1 and HIV-2 to be associated with tuberculosis [5].

The increasing incidence of tuberculosis because of the HIV epidemic greatly complicates tuberculosis control policies. The impact of HIV infection on the tuberculosis situation is obviously most serious when the prevalence of tuberculosis infection in young adults who are at risk of HIV infection is high. Using estimates of the prevalence of tuberculosis infection in various regions, it can be estimated that in early 1992 there were more than 4 million people worldwide with both HIV infection and tuberculosis, the majority of whom lived in

sub-Saharan Africa. HIV seroprevalence rates of > 40% are common among patients with tuberculosis in many sub-Saharan African countries [6]. In South-East Asia, where HIV infection began spreading in more recent years, HIV seroprevalence among tuberculosis patients is also on the increase. For instance, in Chiang Mai, Thailand, it increased from 5.1% in late 1989 to 13.9% in early 1991 [7].

The overlap of tuberculosis and HIV has ominous social and medical implications, particularly for the resource-poor countries. The increase in tuberculosis cases has put considerable pressure on the already fragile and over-stretched health services of such countries with more demand for diagnostic services, antituberculosis drugs, hospital beds and other supplies and services [7]. Moreover, HIV-infected patients have a higher frequency of extrapulmonary tuberculosis, which is more difficult to diagnose than pulmonary tuberculosis.

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Received: 05/08/99; accepted: 28/12/99

Increasing numbers of AIDS and tuberculosis cases and deaths are likely to occur among young adults in their economically most productive years. This has tremendous social and economic implications.

The fear is also that the increasing numbers of HIV-positive patients with tuberculosis will lead to increases in the transmission of tuberculosis to the rest of the population, thereby resulting in an increased proportion of the population being infected with the tuberculosis bacilli in the future [8].

In this study, we aimed to determine the trend of HIV infection in tuberculosis patients over a 3-year period (1996–98) in the Tuberculosis Institute in Baghdad, Iraq.

Patients and methods

A three-staged prospective study was conducted on 430 patients with tuberculosis. The patients were randomly selected from patients seeking medical advice at the Tuberculosis Institute. In the first stage (1996), 86 patients with tuberculosis (50 males and 36 females) were evaluated. Of these, 70 patients were affected with pulmonary tuberculosis and 16 with extrapulmonary tuberculosis. With regard to patients with risk factors for HIV infection, 6 patients had tattoos and 3 were prisoners, 2 of whom were barbers. All patients were tested for HIV.

In the second stage (1997), 164 patients with tuberculosis (120 males and 44 females) were evaluated; 140 had pulmonary tuberculosis and 24 had extrapulmonary tuberculosis. Of these, 4 patients had tattoos, 3 were barbers and 6 were prisoners. All the patients were tested for HIV infection.

In the third stage (1998), 180 patients with tuberculosis (100 males and 80 females) were evaluated; 160 had pulmonary tuberculosis and 20 had extrapulmonary tu-

berculosis. One patient had tattoos and 4 were prisoners. All the patients were tested for HIV infection.

Serological tests were performed by the National Public Health Laboratory using enzyme-linked immunosorbent assay (ELISA). Pulmonary tuberculosis was diagnosed by three sputum samples, which were Ziehl–Neelson stained and examined by binocular microscope, and by chest X-ray. Extrapulmonary tuberculosis was diagnosed by histopathological examination of each case.

Results

Table 1 shows the age and sex distribution of the patients with tuberculosis. Regarding type of tuberculosis, 370 (86%) of the patients had pulmonary tuberculosis and 60 (14%) had extrapulmonary tuberculosis. This is the distribution usually found in Iraq. Table 2 shows the category of exposure and educational levels of the patients with tuberculosis. The greatest proportion were unskilled labourers, followed by students. In addition, 13 (3.0%) of our patients were prisoners, 11 (2.7%) had tattoos and 5 (1.2%) were barbers. None

Table 1 Age and sex distribution of patients with tuberculosis

Age (years)	Males	Females	Total	
			No.	%
14–19	67	42	109	25.3
20–29	71	39	110	25.6
30–39	55	33	88	20.5
40–49	47	29	76	17.7
≥ 50	30	17	47	10.9
Total	270	160	430	100

Table 2 Frequency distribution of the 430 tuberculosis patients by category of exposure and level of education

Variable	No.	%
<i>Category</i>		
Students	152	35.3
Labourers (private)	201	46.7
Clerks	48	11.1
Barbers	5	1.2
Prisoners	13	3.0
Patients with tattooing	11	2.7
<i>Level of education</i>		
Primary school	188	43.7
Secondary school	142	33.0
College	32	7.4
Illiterate	68	15.8

of our patients tested positive for HIV infection. Regarding education, 43.7% of the patients had a primary-school education and 15.8% were illiterate. The illiteracy rate in Iraq is 20%, primary-school enrolment is

42%, secondary-school enrolment 32% and college enrolment is 6%.

Discussion

HIV is recognized to be the strongest risk factor for the progression of latent infection to active tuberculosis. In countries with severe HIV epidemics, there has been a dramatic rise in notification rates for tuberculosis, even when the directly observed treatment, short-course (DOTS) strategy is well applied. Transmission of infection occurs before patients present to the diagnostics centres [9].

In our study, all of the patients were HIV-negative by ELISA, despite some of them belonging to groups considered to be at greater risk for HIV infection (e.g. prisoners, barbers, those with tattoos).

Although HIV infection may not be a major health problem in our country, precautionary measures should be taken to prevent the spread of HIV, particularly in view of its widespread prevalence elsewhere in the world.

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The AIDS epidemic has caused the re-emergence of diseases whose rates had fallen due to improvements in living conditions and in health services, to the extent that people considered these diseases to be diseases of the past. The most important example is tuberculosis, which currently represents a major problem for the world's population. The relationship between the two diseases is that AIDS facilitates the infection of its patients with tuberculosis because of their weak immunity. Consequently, tuberculosis has become the killer of one-third of AIDS cases in the world. Also the wide prevalence of tuberculosis among cases has caused it to spread among non-HIV-infected individuals, to the extent that the AIDS epidemic is also considered responsible for a quarter of those who die of tuberculosis.

Source: Address by Dr. Hussein A. Gezairy, WHO Regional Director for the Eastern Mediterranean, on World AIDS Day, 1 December 2000.