Tuberculosis Incidence at the Burundi-Rwanda Border 15 Years After the Civil War

To the Editor—More than 15 years ago, Rwanda and the adjoining region of Burundi were involved in ethnicity-related civil war. The fighting led to the displacement of approximately 2 million people from Rwanda to Burundi, Congo, and Tanzania.

We have previously described an increase of total tuberculosis cases recorded in the border area between Rwanda and Burundi during that period, mainly related to the precarious socioeconomic conditions of inhabitants and refugees [1]. More recently, our findings have been confirmed by similar reports from Congo-Brazzaville [2] and Guinea-Bissau [3].

The situation in Burundi has relevantly changed in the subsequent years, with improvements in personal security and living standards of the population. All refugee camps have been closed, including those in the area surrounding the Hospital of Kiremba, a hospital in North Burundi close to the Rwanda border. Directly Observed Treatment short-course strategy was introduced in 1993 in Burundi and is widely implemented. The total tuberculosis incidence, after an increase in the years following the conflict, slowly decreased during the period 2005–2009, whereas the tuberculosis cure rate showed an increase over time of up to 90% in smear-positive cases in 2008 [4].

To evaluate the long-term impact of war and public health interventions on local tuberculosis epidemiology, we retrospectively compared the data collected in the Hospital of Kiremba in the years preceding the political upheavals (1992–1994) and in 2005–2009. All patients admitted at the hospital during these periods for suspected lower respiratory tract infection (LRTI) were recorded and their samples subjected to Ziehl–Neelsen staining in absence of response to standard antibiotic treatment. Patients with a diagnosis of tuberculosis subsequently had a serological test (enzyme-linked immunosorbent assay) for human immunodeficiency virus (HIV) infection.

Unexpectedly, the number of smear-positive tuberculosis cases per year increased from a mean of 72.3 in 1992–1994 to 82.2 during 2005–2009; this finding is associated with a reduction in the number of patients admitted to the hospital with LRTI symptoms (896 vs 829 patients per year), leading to a statistically significant increase in the ratio of patients with tuberculosis to symptomatic patients (10.07% vs 8.2%; \( P = .0027 \)). The rate of HIV positivity among tested patients with active tuberculosis showed an increase, which was not statistically significant, from 20% in 1992–1994 to 24.8% in 2005–2009, but still remained below the national rate of 46% [4].

These results show that, despite the high governmental commitment and improved access to healthcare, tuberculosis incidence in the area of Kiremba has not decreased as in the rest of the country. On the contrary, it is still higher than previous levels even 15 years after the civil war and the following migrations that involved the region. A similar long-term increase of tuberculosis cases has been recently observed among children in east Croatia as a result of 5 years of military activities [5].

Our findings can be only partially explained by the slight increase of the burden of HIV–tuberculosis coinfection, which is a problem that seems to be more relevant in other areas of Burundi. As it has been suggested elsewhere [6], war and massive civil migrations may produce an increase in tuberculosis transmission that lasts many years.

Notes

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