

Drug-Resistant Strains of TB Add New Urgency to an Old Disease

By Barbara Ruben

At the time Russian playwright Anton Chekhov died of tuberculosis in 1904, doctors around the world were experimenting with dozens of remedies for the disease, ranging from the dangerous and painful practice of collapsing patients' lungs to treatment with such potentially toxic substances as creosote and chloroform. By the middle of the century, TB treatment was transformed by the discovery of powerful new antibiotics, which, taken in combination, could cure the disease.

But a report issued by the World Health Organization (WHO) last October outlines a dangerous erosion of the headway made against TB. Increasingly, the disease outwits the drugs designed to vanquish it. Most worrisome to epidemiologists is the fact that TB is now sometimes resistant to more than one drug, including the commonly prescribed drugs isoniazid and rifampicin, making the disease incurable for many who don't have access to more expensive drugs and health care. Worldwide, TB--which attacks the lungs--kills more adults than all other infectious diseases combined.

The WHO report on multiple drug resistance (MDR-TB) identifies seven "hot zones" where the problem is particularly acute. These include Russia, Latvia, Estonia, India, the Dominican Republic, Argentina and the Ivory Coast. The study was done in cooperation with the Centers for Disease Control and Prevention and the International Union Against Tuberculosis and Lung Disease, with financial support from USAID.

"MDR-TB is like Ebola with wings--an airborne bacteria that is a death sentence for most of the world," said Arata Kochi, MD, director of WHO's Global TB Program. "If tuberculosis were a new disease, the world would spare no expense to fight it. But the world forgot TB because it became an old and familiar enemy. Now, while we have been looking the other way and allowing bad medical practice to be used against TB, the germ has mutated into drug-resistant strains, making itself a more difficult and deadly enemy to combat."

Latvia has some of the worst problems, according to the study. Twenty-two percent of all TB patients are resistant to more than one drug. The country also has the highest percentage of patients with acquired MDR-TB. Patients with acquired resistance became resistant to the drugs after taking them, often because the drug was not taken for a long enough period.

TB incidence increased from 26 cases per 100,000 in 1989 to 60 per 100,000 in 1996, according to the Welfare Ministry's Center of Tuberculosis and Lung Diseases. By contrast, the Czech Republic's rate is 17.8 and the US's is 8.7.

"The epidemiological deterioration is linked with the economic collapse in Latvia after we regained our independence," said Janis Leimans, the center's director. "Most of the MDR cases are among patients with bad compliance who interrupted their treatment many times, such as alcoholics, the homeless, the unemployed and ex-prisoners."

TB treatment in Latvia is free, and all antibiotics are available in the country. In 1996, health care practitioners began implementing the directly observed therapy system (DOTS) in Riga, the country's best hope for reducing TB, according to Leimans. DOTS, WHO's recommended treatment method, ensures that patients take the entire six-month course of daily antibiotics. If patients consistently take their medication, isolation is not necessary, according to WHO.

The report shows that the Ivanova Oblast, northeast of Moscow, has a 100 percent acquired resistance rate and an overall resistance rate of 38.3 percent. Estonia has a 31.2 percent resistance rate.

TB is also a growing problem in Belarus, said Mikhail Gelfand, who was the director of the Center for Disease Control in Minsk until 1994 when he moved to New York to coordinate the infection control department at Coney Island Hospital.

"With more poor people, sometimes there are now three or four families sharing a kitchen and bath. In these communal apartments, there is more chance of getting TB from a neighbor," Gelfand said. He noted that Belarus is also experiencing a shortage of drugs to treat TB and that some patients refuse to take their medication for the entire six-month period.

The skyrocketing rates of TB among prisoners in some of the nations of the NIS also has doctors and health administrators concerned. Fifty percent of 850,000 to one million prisoners in Russia have TB, according to Murray Feshbach, a demographer at Georgetown University in Washington, DC. This is a rate 40 times higher than in the general population, he said. About 80 percent of infected ex-convicts have a drug-resistant form of TB, said Alexey Priymak, director of TB services for the Russian Ministry of Health, according to a report in *Newsday* last October.

At partner institution Children's Hospital for Respiratory Diseases in Zagreb, Croatia, doctors treat about 120 children ages 0-19 for TB each year. Most patients stay in the hospital about two months and complete the six-month treatment at home. Home treatment is difficult because children usually get TB from their parents, according to Ivka Zoricic-Letoja, MD, a pulmonologist at the hospital. Drug resistance at the hospital is only two percent, and there have been no cases of MDR-TB. During the war, an influx of refugees drove up the number of TB cases, but the incidence has been decreasing in the last two years, she said.

The Czech Republic also has low drug resistance rates; at 2 percent, it has the lowest overall resistance rate of the 35 countries around the world included in the WHO survey. Part of its success has been attributed to the country's strict policy on antibiotic use, including keeping tabs on emerging resistance.

"MDR-TB is the creation of man, not nature. The challenge to controlling it does not go out to science, but to the world's leaders," said Michael Iserman, MD, chief of the tuberculosis program at the National Jewish Medical and Research Center, and one of the authors of the WHO study. "Tuberculosis was the greatest health challenge of the early 20th century. We must not allow MDR-TB to become the greatest infectious health threat of the 21st century."