Chagas Disease After Organ Transplantation—United States, 2001

Chagas disease (American trypanosomiasis) is caused by the protozoan parasite Trypanosoma cruzi. Chagas disease following solid-organ transplantation has occurred in Latin America, where Chagas disease is endemic, but has not been reported previously in the United States. This report describes three cases in the United States of T. cruzi infection associated with transplantation of organs from a single donor. CDC and the U.S. organ transplantation organizations will consider whether to recommend screening of potential donors for T. cruzi infection and, if so, which donors to screen, how to screen, and what to do if the screening tests are positive.

On April 23, 2001, a physician notified CDC of an acute case of Chagas disease. A woman aged 37 years who had received cadaveric kidney and pancreas transplants on March 5 returned to the hospital on April 19 for evaluation of a febrile illness. On April 23, T. cruzi trypomastigotes were identified on a peripheral blood smear. Subsequently, two other persons who had received organs from the same donor—a woman aged 32 years who had received the liver and a woman aged 69 years who had received the other kidney—were found to be infected with T. cruzi. Cultures of blood from all three recipients were positive for T. cruzi. The donor, an immigrant from Central America, presumably had been infected with T. cruzi; however, no specimens from the donor were available for testing.

After infection was detected, the recipients were treated with nifurtimox provided by the CDC Drug Service, which provides U.S.-licensed physicians with drugs that otherwise would not be available in the United States. The woman aged 69 years who had received a kidney was treated for approximately 4 months and, as of March 2002, has done well with no evidence of recurrence of T. cruzi infection. The other two patients died. The recipient of the kidney and pancreas transplants, who was the most immunosuppressed of the three patients, experienced recurrent, asymptomatic T. cruzi parasitemia several weeks after completing a 4-month course of treatment with nifurtimox. On October 8, she died of acute Chagasic myocarditis, 2 weeks into her second course of nifurtimox therapy. On July 8, after several weeks of nifurtimox therapy, the recipient of the liver died of sepsis and hepatic and renal failure, which were unrelated to T. cruzi infection. On April 10, 2002, she died of acute Chagasic myocarditis, 2 weeks into her second course of nifurtimox therapy. On July 8, after several weeks of nifurtimox therapy, she died of acute Chagasic myocarditis.

Transmission of T. cruzi infection by solid-organ transplantation (particularly renal transplants) has been reported in Latin America, where serologic screening of organ donors and recipients for antibody to T. cruzi is standard practice. In two instances, both recipients of a kidney from the same donor became infected with T. cruzi.

The cluster of three cases reported here represents the first recognized U.S. occurrence of T. cruzi infection through solid-organ transplantation. In the United States, no policies concerning the

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screening of potential organ donors for
T. cruzi infection have been estab-
lished. Although serologic tests for the
diagnosis of T. cruzi infection are avail-
able in the United States, the tests vary
in sensitivity and specificity. No test has
been licensed in the United States for
screening organ or blood donors.

CDC has notified the United Net-
work for Organ Sharing (UNOS), which
operates the Organ Procurement and
Transplantation Network (OPTN) un-
der contract with the U.S. Department
of Health and Human Services, about
these cases of Chagas disease. CDC and
the scientific committees of the OPTN/
UNOS, which develops guidelines and
policies for organ procurement, will con-
sider whether to recommend screen-
ing of potential donors for T. cruzi in-
fec tion and, if so, which donors to
screen, how to screen, and what to do
if the screening tests are positive.

REFERENCES
9 available

Progress Toward
Tuberculosis
Control—
India, 2001

1 table, 1 figure omitted

EVERY YEAR, APPROXIMATELY 2 MILLION
persons in India develop tuberculosis
(TB), accounting for one fourth of the
world’s new TB cases.1 Organized TB
control activities have existed in India
for 40 years; however, the quality of diag-
nosis and treatment of TB in the public
and private sectors has been variable, and
TB incidence and prevalence trends have
not changed substantially over this time.2
In 1992, the Indian government estab-
lished a Revised National Tuberculosis
Control Programme (RNTCP) using the
directly observed treatment, short-
course (DOTS) strategy recommended by
the World Health Organization (WHO).3 The DOTS strategy consists of
sustained government commitment,
effective laboratory-based diagnosis,
standard treatment given under direct
observation, secure drug supply, and sys-
tematic monitoring and evaluation.
RNTCP was implemented in pilot areas
beginning in 1993; large-scale imple-
mentation of the program began in late
1998. This report summarizes the pro-
cess, outcomes, and challenges of
RNTCP in India. RNTCP has imple-
mented DOTS rapidly and has yielded
positive results in TB control; however,
continued commitment from Indian gov-
ernment authorities and the interna-
tional community is needed to sustain
and expand this ongoing program.

During 1993-2001, under RNTCP,
patients diagnosed in health-care facili-
ties with cough lasting ≥3 weeks under-
went three sputum smear examina-
tions over a 2-day period. If all three
acid-fast bacilli (AFB) smears were nega-
tive, 1-2 weeks of broad-spectrum anti-
biotics were prescribed. If some but not
all of the specimens were positive, or if
a patient with negative smears contin-
ued to have symptoms after 1-2 weeks
of broad-spectrum antibiotics, a chest
radiograph was taken, and if indicative
of disease, the patient was treated for TB.
All TB treatment was given three times
weekly on alternate days; the diagno-
stic evaluation and the entire course of
treatment were free of charge. During the
first 2 months of treatment (intensive
phase), patients were treated with iso-
niazid, rifampin, pyrazinamide, and eth-
ambutol (streptomycin was added for
retreatment patients, and ethambutol
was omitted for smear-negative, nonse-
riously ill patients); every dose was
observed directly by either a health-
care provider or a nonfamily commu-
nity member. For the remaining 4-6
months of treatment (continuation
phase), either isoniazid and rifampin or
isoniazid, rifampin, and ethambutol were
prepared into weekly packs, and at least
the first dose each week was observed
directly. To prevent drug shortages dur-
ing TB therapy, medications for both
phases of treatment were maintained in
individualized patient boxes contain-
ing the entire course of treatment for a
given patient at the health facility or resi-
dence of the community volunteer pro-
viding DOTS. Recording and reporting
of case detection and treatment out-
comes were conducted according to
WHO recommendations.3

As of November 2001, RNTCP of-
tered TB control services to regions com-
prising >40% of the country’s popula-
tion (>440 million persons), compared
with <2% in mid-1998. To prepare for
service delivery under RNTCP, since
1998, approximately 3,000 small labo-
ratories have been upgraded for smear
microscopy, 2,000 contractual staff hired,
approximately 200,000 health-care
workers trained in different aspects of
DOTS service provision, and approxi-
mately 500 million tablets of anti-TB
medication distributed.

During 2001, approximately 300,000
adult outpatient visits were recorded per
day in facilities covered by RNTCP, with
approximately 3,500 patients exam-
ined for TB and approximately 1,300
patients started on treatment each day
of operation. Indicators of the quality
of case-detection activities include the
proportion of patients with newly di-
gnosed pulmonary TB who are sput-
um smear-positive for AFB (which
should be ≥50% in a well-functioning
program).3 During April-June 2001, 179
(95%) of 189 districts reported that
≥50% of all new pulmonary TB pa-
tients were diagnosed as sputum smear-
positive for AFB, indicating high diag-
nostic quality in these districts.

One year following the start of treat-
ment, 256,621 (80%) patients had been
treated successfully, and 98,302 (81%)
patients who were initially sputum
smear-positive had laboratory evi-
dence of sputum conversion to nega-
tive. During April-June 2000, 77 (75%)
districts had treatment success rates of
≥80%. However, previously treated pa-
tients had outcomes that were slightly
less favorable than new TB patients (71% versus 83% treatment success). Pa-
tients who had previously failed treat-
ment (those who were sputum smear-
positive at 3 months or later during an
earlier course of treatment) had a sig-
nificantly higher risk for remaining
smear-positive when treated again than did other types of retreatment patients, such as successfully treated patients that relapsed or those who prematurely discontinued treatment (12.9% versus 5.8% and 5.2% respectively, p<0.001).

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CDC Editorial Note: Despite the availability of highly effective and inexpensive drugs, TB causes more deaths per year in India (421,000) than malaria, hepatitis, meningitis, nutritional deficiencies, sexually transmitted diseases, leprosy, and tropical diseases (e.g., dengue fever, trypanosomiasis, schistosomiasis, leishmaniasis, lymphatic filariasis, and onchocerciasis) combined (258,000). Since 1993, India has implemented successfully a TB control program using the WHO-recommended DOTS strategy. Many of the principles for diagnosis and treatment of the DOTS strategy were derived from studies conducted in India that demonstrated the effectiveness of ambulatory treatment of TB, the necessity and feasibility of DOTS, the efficacy of intermittent treatment with anti-TB drugs (twice weekly rather than daily), and the feasibility of case detection through sputum smear microscopy in primary-care settings. However, only recently have these findings been applied widely to establish TB control in large areas of India. The 4% death rate recorded in RNTCP areas since implementation is substantially lower than previously documented death rates of up to 29% among treated smear-positive TB patients in non-RNTCP areas.

Several obstacles impede the expansion of TB control under RNTCP. First, diagnosis and treatment of TB are uncoordinated and inconsistent because many patients initially receiveTB care through the large private health-care sector, pharmacies often sell anti-TB drugs over the counter, and TB notification requirements are not enforced routinely. Second, poverty impedes program performance. Many areas lack regular electric supply, limiting the effectiveness of binocular microscopy. Economic hardships and drought cause large-scale migration, reducing treatment completion and cure rates. Third, a patient-centered approach to care—one that actively helps patients by providing them with transportation to health facilities, food, and social support to overcome obstacles to completion of treatment—is not practiced widely in India. Fourth, anti-TB drug resistance, which reflects current or past poor program performance, is difficult to treat and might account for the noticeably higher treatment failure rate among retreated TB patients. In several surveyed areas of India, 1.0%-3.3% of new TB patients have multidrug-resistant TB (MDR-TB), which is resistant to at least isoniazid and rifampin, the two most effective anti-TB drugs.

This is higher than in many countries, but much lower than in some high-prevalence areas (e.g., areas in the former Soviet Union and New York City in the early 1990s). However, even if as few as 2% of new patients were to have MDR-TB, this would represent an estimated 20,000 new infectious cases of MDR-TB in India every year. In areas with relatively good performance, pilot projects of expanded programs to treat MDR-TB should be considered.

Finally, although this report does not assess the level of human immunodeficiency virus (HIV) infection among TB patients, the increasing prevalence of HIV in India represents a serious threat to TB control efforts. Approximately 4 million persons in India (<1% of the population) are infected with HIV, of which approximately half also are infected with M. tuberculosis. An additional 140,000 TB cases have been estimated annually among tuberculosis skin test-positive HIV-infected persons.

The TB control program in India, already one of the largest public health programs in the world, continues to expand, with plans to cover 80% of the country by 2004 and 100% by 2005. The implementation of RNTCP has resulted in a net savings of more than $400 million in economic costs; effective nationwide implementation by 2005 would save more than $27 billion through 2020. Sustaining and expanding this program will require continued high-level commitment from the central and state governments of India, supplemented by continued and coordinated assistance from international and bilateral organizations.

Progress toward TB control in India is critical to global TB control and has direct implications for TB elimination efforts in the United States because nearly half of all TB cases in the United States occur among foreign-born persons, a substantial proportion of whom (nearly 10%) are immigrants from India. With immigration from India to the United States rising, India’s proportionate contribution to U.S. domestic TB will probably increase.

REFERENCES

10 available

*The sum of smear-positive patients who have laboratory evidence of sputum conversion to negative (cure) and those who have completed treatment without final laboratory confirmation of cure.

2002 Conference on Antimicrobial Resistance

MMWR. 2002;51:238

The 2002 Conference on Antimicrobial Resistance will be held June 27-29, 2002, in Bethesda, Maryland. The conference is sponsored by the National Foundation for Infectious Diseases (NFID) in collaboration with nine agencies, institutes, and organizations involved in conducting and/or promoting research, prevention, and control of antimicrobial resistance.

The deadline for online submission of abstracts for oral and poster presentations is April 15. Program announcements and forms for abstract submission, registration, and hotel reservations are available at http://www.nfid.org/conferences/resistance02 and from NFID, 4733 Bethesda Avenue, Suite 750, Bethesda, Maryland 20814-5278;

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Manufacturer's Recall of Rapid Assay Kits Based on False Positive Cryptosporidium Antigen Tests—Wisconsin, 2001-2002

MMWR. 2002;51:189

The Wisconsin Division of Public Health and the Wisconsin State Laboratory of Hygiene (WSLH) reported that a recent cluster of cryptosporidiosis cases in a three-county area in southeastern Wisconsin was the result of false-positive tests. During December 1, 2001—February 1, 2002, approximately 30 cases of cryptosporidiosis were diagnosed at a laboratory in southeastern Wisconsin using the Becton, Dickinson, and Company (Franklin Lakes, New Jersey) ColorPAC™ Cryptosporidium/Giardia rapid assay (lot number 219370, expiration date 2002-06-05). Seventeen stool specimens, which were collected from 11 patients and tested positive by the rapid assay, were re-evaluated at WSLH. Six of these stool specimens were in EcoFix (Meridian Bioscience Inc., Cincinnati, Ohio), eight were in Cary-Blair transport media, and three were formalin fixed. All 17 specimens tested negative for Cryptosporidium at WSLH using the hot safranin stain and Meri-Fluor (Meridian Bioscience Inc., Cincinnati, Ohio) Cryptosporidium/Giardia direct fluorescent antibody kit with concentrated specimens.

For comparison, WSLH repeated the rapid assay tests of the specimens using Becton, Dickinson, and Company ColorPAC™ Cryptosporidium/Giardia rapid assay from the same lot used at the southeastern Wisconsin laboratory. Eleven (65%) of the 17 stool specimens were positive on repeat testing, including five (83%) specimens in EcoFix, four (50%) of specimens in Cary-Blair transport media, and two (67%) of the formalin-fixed specimens. The ColorPAC™ kits also were used to test four known Cryptosporidium negative stool specimens, and two of these tests were positive. Becton, Dickinson, and Company has voluntarily recalled this lot from laboratories.

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Satellite Broadcast on HIV Prevention

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“REVISED RECOMMENDATIONS FOR HIV Screening of Pregnant Women,” a satellite broadcast, is scheduled for Thursday, April 25, 2002, at 1 PM, EST. The 2-hour forum is cosponsored by CDC and the Public Health Training Network, and describes CDC's revised recommendations for HIV screening of pregnant women. Presentations and interviews will provide an update on implementation issues for the revised recommendations and identify special populations at high risk of perinatal transmission of HIV. This broadcast is designed for community-based organizations, service providers, and other persons in contact with women of child-bearing age about any health matters such as prenatal care, primary care, and substance abuse. Viewers can fax questions and comments before and during the broadcast. Additional information is available at http://www.cdcnpin.org/broadcast and through CDC’s Fax Information System, telephone (888) 232-3299, by entering document number 130036 and a return fax number. Organizations setting up viewing sites are encouraged to register online or by fax as early as possible so that viewers can access information about viewing locations when visiting the website or calling the information line.

REFERENCE
1. CDC. Revised recommendations for HIV screening of pregnant women. MMWR 2001;50(No. RR-19).