RESEARCH PAPER International Journal of Medical Sciences (October, 2009 to March, 2010) Vol. 2 Issue 2 : 144-147

Polymerase Chain Reaction for Extra pulmonary Tuberculosis in Cerebrospinal Fluid of HIV-Infected Patients

P. SENTHAMILSELVAN AND V. SIVAKUMARI

See end of the article for authors' affiliation

Correspondence to :
V. SHIVAKUMARI
Department of Environmental and Herbal Sciences, Tamil University, THANJAVUR (T.N.) INDIA

ABSTRACT

In the present study, total of 195 symptomatic patients (165 male and 30 female) were taken and positive *Mycobacterium tuberculosis* were seen in 82 cases. Moreover, 16 out of 82 patients were HIV positive with *Mycobacterium tuberculosis.* The sputum, blood, biological fluids, stools and urine samples were collected from each patient and were processed under aseptic condition. Standard tests such as acid-fast staining (AFS), culture (Lowenstein-Jensen) and Polymerase Chain Reaction (PCR) tests were carried out for *Mycobacterium tuberculosis* detection.

Key words : *Mycobacterium tuberculosis*, HIV and polymerase chain reaction

Accepted :
August, 2009

HIV is the most powerful risk factor for progression from TB infection to TB disease. An HIV positive person infected with *M. tuberculosis* has a 50% lifetime risk of developing TB whereas an HIV negative person infected with *M. tuberculosis* has only a 10% risk of developing TB. This is especially important in India because it is estimated that almost half of the adult population harbors *M. tuberculosis*. In 2004 an estimated 14 million people worldwide were living with dual HIV and TB infection, of whom 70% were Africans (UNAIDS, 2005).

MATERIALS AND METHODS

Study design and population:

Subjects hailing from the out patient (OP) tuberculosis services at the Raja Mirasudar Hospital (RMH), Thanjavur, Tamilnadu, India were included in the study. This study was conducted between December 2008 to February 2009. People between 10 and above 60 years of age were considered. The population under study were people suffering from chronic fever, cough and weight loss.

Collection of sputum:

For diagnosis of tuberculosis, three specimens of sputum were examined over a period of two days. Specimens were collected in sterile universal containers, which had a fixed label for noting patient's information on the side of the container. The specimen was collected in an aerosol free container. An ideal sample volume was about 5 ml and a minimum of 3 consecutive sputum specimens were collected. Transportation of the specimen for culture was done in a sterile leak proof container within a period of 3 days.

Microscopy of sputum is of great value in the detection of open or infectious cases of tuberculosis. Smears were stained by Ziehl-Neelsen method. Grading of the positive smears gives a broad indication of the severity of the disease and the response to therapy. The patient was then instructed to collect an early morning specimen in a similar manner, which was followed by third collection of specimen on his second attendance. The vital details such as name, address, age, sex and bottle number were recorded in a form and sent to the laboratory (Smithwick, 1976; Petroff, 1995; Allen and Baker, 1968).

The sputum culture was prepared by using L-J medium (Cannetti *et al*., 1963) and incubated at 37^0C. The incubated cultures were examined on a fixed day of a week for eight consecutive weeks and the positive result was noted.

Various biochemical tests like, nitrate reduction, niacin production, microlisa test (WHO, 2004) and PCR test were used and