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Adult Contacts in Children with Tuberculosis

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The diagnosis of tuberculosis in children is difficult because of the paucibacillary nature of infection. Uniform diagnostic criteria have not been generally accepted and the currently available guidelines differ widely. A simple, reliable and rapid diagnostic test for the diagnosis of active tuberculosis has still to be evolved. So the diagnosis of tuberculosis still depends on the conventional methods and based on clinical history, tuberculin test, contact detection and chest skiagram.

Identifying children with tuberculosis may be particularly difficult since many of the usual signs and symptoms of this infection may be absent in the early stages of the disease and over one-half of patients have

few or no symptoms despite the presence of significant abnormalities on chest radiograph(1). Further, some patients with tuberculosis may have a persistently negative tuberculin reaction (2). A negative tuberculin test therefore, does not exclude tuberculous infection or disease. The association between energy to purified protein derivative and severe tuberculosis has also been well documented (3). Hematological findings do not offer much help in diagnosis. Radiological diagnosis of pulmonary tuberculosis is difficult as the findings are not often confirmatory (4). Bacteriologic confirmation of tuberculosis is difficult in children with primary disease. There are few sources of culture material which often gives low yield (15-40%) of positive culture(5,6). Thus diagnosis of tuberculous infection in children still depends largely on history of contact and the careful interpretation of Mantoux test (7).

The importance of case contact investigation cannot be over emphasized as upto 50% of children are diagnosed as a result of case contact investigations (8,9). In areas of high prevalence, tuberculosis carries a social stigma and a positive family history is often denied unless assiduously pursued. Hence a study was undertaken to evaluate the frequency of adult tuberculosis in the family (intra-familial contact) and in neighborhood (extra-familial contact) in children presenting with thoracic and extra thoracic forms of tuberculosis. Tracing the adult tuberculous contacts (source) through the children with suspected tuberculosis

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*Manuscript received: April 9, 1996;
 Initial review completed: May 23, 1996;
 Revision accepted: February 27, 1997*

(newly detected) is just the reverse of contact tracing (case finding) of a smear positive index adult case. It is very useful from the diagnostic and epidemiologic points of view for the management of childhood tuberculosis.

Subjects and Methods

Children in the age group of 3 months to 12 years registered at Tuberculosis Clinic at the Institute of Child Health, Madras, from January 1993 to July 1994 for various forms of tuberculosis were included in the study. Thoracic tuberculosis was diagnosed on the basis of classical history (cough, fever, failure to thrive), Mantoux positivity, body fluid analysis and persistent lung parenchymal changes after a course of antibiotic therapy (10). Extra thoracic tuberculosis was diagnosed based on body fluid analysis, radiographic findings, computerised tomography and tissue biopsy. Wherever possible, an attempt was made to isolate *M. tuberculosis* from body sites. Cases outside the Madras city were excluded. History of an adult tuberculous contact in the family or in their dwelling place was elicited from the parents/attendants through a structured questionnaire after gaining their confidence. In case a positive history of adult contact with tuberculosis was obtained, the investigation and treatment regimen of the adult tuberculous contacts were scrutinized and subsequently verified by the medical social worker, during their home visits. Adult who had received antitubercular therapy in the recent past (upto 2 years) at any Government Tuberculosis Center were considered as adult source (contacts). Tuberculous adults in the family zone were designated as intra-familial contacts (IFC) and neighbors (adjacent house). Close relatives and frequent visitors with tuberculosis were designated as extra-familial contact (EFC). Parents who denied history of tuberculosis were subject-

ed for screening at nearby Tuberculosis Institute (Government Tuberculosis Hospital, Chetput).

Despite the availability of newer diagnostic techniques, the difficulty in diagnosis of tuberculosis in children was explained to parents. It was stressed that disclosing the presence of tuberculosis in the family and neighborhood not only increases the chances of detection of tuberculosis in their children but also helps to protect their unaffected children.

Results

Two hundred and twenty seven children with various forms of tuberculosis (intrathoracic 112, extra thoracic 115) were included in the study. Intrathoracic tuberculosis included pulmonary infiltration (n=55), intrathoracic adenopathy (5), pleural effusion (n=23), cylindrical bronchiectasis (n=24), atelectasis (n=2), cavity (n=1) and calcified tuberculosis (n=2). Extra thoracic tuberculosis included tuberculous meningitis (n=49), tuberculoma (n=6), lymphnode tuberculosis (n=30), abdominal tuberculosis (n=10) bone tuberculosis (n=14) and disseminated tuberculosis (n=6).

In children with intrathoracic tuberculosis forms 65% had contact with adult tuberculosis patients (of which intrafamilial contact contributed 67%); whereas 57% of children with extra thoracic tuberculosis (of which intrafamilial contact contributed to 61.9%) had adult contacts (*Table 1*). By screening parents who denied tuberculosis (those who claimed that they were having normal health), 13 new adult tubercular cases (9.3%) were detected. Thus overall, 61% children had tuberculous adult contact.

Discussion

One of the principal reasons for the failure of tuberculosis control programmes in

TABLE I—*Adult Tuberculous Contacts in Relation to Various Types of Tuberculosis.*

Tuberculosis type	n	Adult contacts				Total	
		By verification		By screening		n	%
		IFC	EFC	IFC	EFC		
Intra-thoracic	112	42	27	7	0	73	(65.1)
Extra-thoracic	115	39	21	6	0	66	(57.3)
Total	227	81	48	13	0	139	(61.2)

IFC: Intrafamilial contact; EFC: Extrafamilial contact.

developing countries is the inability to detect infectious cases early(11). Tuberculosis cases in children are important public health markers in a community, because they represent ongoing transmission of tuberculosis in adults. By verifying treatment details and by screening of parents we detected a tuberculous adult source in 61.2% of cases. The corresponding figures in similar studies conducted outside India were 52.3 %(12) and 44%(13). A more recent study has documented adult source contacts in 68% of cases tuberculosis in infants (14). So it is advisable to investigate the parents of tuberculous pediatric patients even when they deny history of this infection in their family. Moreover, adult tuberculous contact detection is quite suggestive of tuberculosis in suspected children because in several recent studies, a large percentage of cases were diagnosed simply through case contact tracing and investigation (1,8,9).

Among the adult tuberculous contacts, intrafamilial contact (household contact) is high (67%). Among the intrafamilial contact, father and grandfather are more often the source followed by the mother. In 4 children with intrathoracic tuberculosis, multiple adult sources were detected.

Tracing the contacts of a smear positive index adult case, such as household contacts is the usual screening technique in

countries with high prevalence of tuberculosis and is an important strategy in the tuberculosis control programme. Similarly finding adult tuberculous contact source is an important way of diagnosing pediatric tuberculosis. By eliciting a positive adult tuberculous contact history, the parents are made to realize that their children are affected because of them and they strictly adhere to their treatment schedule. By instituting preventive therapy infected children are prevented from progression into a disease state.

In conclusion, adult source detection is an important corroborative evidence for tuberculosis in a child in addition to careful interpretation of a tuberculin test and chest skiagram.

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Kawasaki Disease at Chandigarh

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Kawasaki Disease (KD) is an acute febrile illness which mainly affects infants and children below 5 years of age and is characterized by a vasculitis involving the medium size arteries (1,2). It has been reported from all regions of the world (3,4) though reports from India have, till very recently, been few and far between (5-9). As there is no confirmatory laboratory test, the diagnosis may be missed if one is not familiar with the clinical features (3). The purpose of the present communication is to

share our experience with this condition over the last 3 years.

Subjects and Methods

The first patient with KD was diagnosed in May 1994 and since that time we have seen 9 children in whom a possibility of KD was kept in the differential diagnosis. These children were then kept under

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*Manuscript received: September 18, 1996;
Initial review completed: November 21, 1996;
Revision accepted: March 10, 1997*