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Childhood Tuberculosis as seen at the Ahmadu Bello University Teaching Hospital, Zaria

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Summary

Taqi AM, Abdurrahman MB and Ango SS. Childhood Tuberculosis as seen at the Ahmadu Bello University Teaching Hospital, Zaria. *Nigerian Journal of Paediatrics* **1982; 9 : 99.** In a study of 143 children with tuberculosis, 84% of the cases were found to be below the age of 5 years. Measles was an antecedent illness in 57% of the cases, while 41 were malnourished. There was a positive contact history in 42 cases. Twenty-seven cases had received BCG vaccination previously. Pulmonary tuberculosis was the most prevalent type with hilar and/or paratracheal adenopathy and bronchopneumonia predominating. Twelve children presented with chronic otorrhoea. The defaulting rates at clinic attendance were 26% and 75% at 6 and 12 months, respectively.

The experience from the present study indicates the need to combat tuberculosis in the Zaria community. Besides drug therapy, contact tracing and a comprehensive immunization programme for children are mandatory, if the disease is to be contained.

Introduction

Although tuberculosis is a curable disease, it is still common among African children.[1–4] There are many reasons for this situation in African countries, chief among which are poor environmental sanitation; difficulty in making a definite diagnosis of tuberculosis in children living in these regions, where childhood malnutrition is common; close contact with adults who are infectious but do not seek treatment, and the high incidence of infections such as measles. The incidence of tuberculosis among Nigerian children is unknown.[2 3] However, Okeahialam from Enugu, has recently reported that 12% of the total yearly admissions to the paediatric beds at the University of Nigeria Teaching Hospital, were cases of tuberculosis.

The present paper presents the picture of the prevalent forms of tuberculosis among children seen at the Ahmadu Bello University Teaching Hospital (ABUTH), Zaria and highlights the modes of presentation and problems of long-term domiciliary management of the disease.

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Materials and Methods

During a 4-year period, January, 1977 to December, 1980, children seen in the paediatric department, ABUTH, Zaria, with suspected tuberculosis, were investigated. Investigation carried out included Mantoux test, using 5 tuberculin units of PPD, radiography of the chest, abdomen and spine in some cases; sputum and gastric washings were also examined for acid fast bacilli. Cerebrospinal fluid (CSF) was obtained for examination as indicated. Weights were recorded at initial presentation and at each clinic attendance. Diagnostic criteria included the following:

(*a*) reaction to Mantoux test with an induration greater than 10mm in a child below the age of 5 years and a history of close contact with a case of tuberculosis,

(*b*) abnormal CSF and radiographic findings, in addition to other features of tuberculosis.

(*c*) isolation of *Mycobacterium tuberculosis* from sputum, gastric washings or CSF.

(*d*) histological changes of tuberculosis in gland biopsy and

(*e*) abnormal chest radiographic findings which persisted despite adequate antibiotic therapy, but which responded to 'Thiazina' (a combination of isoniazid and thiacetazone), in addition to a satisfactory weight gain.

Three hundred and four cases fulfilled the above criteria. Sixty-four of these had primary complex only, as evident in the chest radiograph; they received thiazina on out-patient basis. Two hundred and forty others were hospitalised for 4–6 weeks during which time they received either streptomycin and thiazina or streptomycin, pyrazinamide, isoniazid and rifampicin, depending on the severity of the disease. Seven of the 240 hospitalised patients died within a week of admission, while five others absconded from the hospital. The remaining 228 were discharged home after 4–6 weeks. Of these 228 cases, 210 had mainly pulmonary lesions and were treated with thiazina, while 18 with extrapulmonary lesions received isoniazid and rifampicin on out-patient basis. Thus, out of the 304 cases originally diagnosed, 292 (228 hospitalised initially and 64 who had been on out-patient treatment throughout) were scheduled to attend a follow-up clinic monthly for at least, 12 months. The importance of regular attendance at the clinic was carefully explained to the parents or guardians who brought the children to the clinic. Yet, only 143 (49%) of the 292 cases were registered at the clinic and they formed the basis of this report.

Results

One hundred and twenty (84%) of the 143 cases were aged below 5 years (range, 6 months to 10 years). There were 83 males and 60 females, a M/F ratio of 1.4 : 1. This observation does not differ from the general pattern of admissions to the paediatric wards of the hospital. Eighty-one (56%) of the 143 cases had measles and three, whooping cough for periods ranging from 1–3 months prior to presentation. Fifty-eight (41%) of the 143 were severely malnourished and had advanced pulmonary or extrapulmonary lesions (52 with bronchopneumonia, five with cavitation and one with tuberculous meningitis). Thirty-two of the malnourished patients were marasmic and 26 had marasmic-kwashiorkor. Twenty-seven patients claimed to have had BCG vaccination. There was positive contact history in 42 cases. Twelve (8%) of the 143 cases presented with chronic ear discharge, in addition to other symptoms.

Sites of Lesions

There were 125 patients with mainly pulmonary and 18 others with mixed lesions. The prevalence of the various lesions in the different age groups are shown in Tables I and II. Five patients with meningeal involvement also had miliary spread in the lungs and were unconscious at initial presentation.

TABLE I

Prevalence of Various Pulmonary Lesions in 130 Children with Tuberculosis

Lesion	Ages (Yrs) 0–4	5–8	9–12	All Ages	% of Total
Hilar and/or paratracheal adenopathy	48†	15†	1	64	49.2
Bronchopneumonia	41	9	2	52	40.0
Segmental lesion (consolidation/collapse)	16	5	–	21	16.2
Miliary spread	8*	2	1	11	8.5
Cavitation	5	2	3	10	7.7
Pleural effusion	3	1	2	6	4.6

*5 had meningeal involvement

†11 of these also had extrapulmonary lesions

TABLE II

Prevalence of Various Extrapulmonary Lesions in 18 Children with Tuberculosis

Lesion	Age (Yrs) 0–4	5–8	9–12	All Ages	% of Total
Spinal tuberculosis	6	4	1	11	61.1
Cervical and/or supraclavicular lymphadenopathy	8†	3†	–	11	61.1
Tuberculous meningitis	6*	1	–	7	38.9
Disseminated tuberculosis with main symptoms in the abdomen	–	1	2	3	16.7

*5 also had miliary spread in the lungs

† Had pulmonary lesions as well

Follow-up

The Duration of attendance at the clinic is summarised in Table III. Of the 143 cases registered, only 36 (25%) received therapy for 12 months and 34 of these were free of symptoms and had normal chest radiographs. There were two cases of treatment failure, inspite of the fact that these patients attended the clinic for a period of 12 months. This was partly due to the prescribed drugs being taken irregularly, coupled with the fact that they were in close contact with a relation who was infectious. The default rates were 26% and 75%at six months and 12 months, respectively. Eighty-six of the 143 cases lived in Zaria and its surrounding villages. Efforts made to trace defaulters were unrewarding, because of the considerable difficulty encountered in trying to locate their homes.

TABLE III

Duration of Attendance at Follow-up Clinic, of 143 Children with Tuberculosis

Year	Total No of Cases	No Attending for < 6 months	No Attending for 6 months	No Attending for 12 months
1977	21	4	8	9
1978	54	15	23	16
1979	42	9	22	11
1980	26	9	17	–
Total	143	37	70	36

Discussion

The present study indicates that tuberculosis is a major problem among children living in Zaria. The cases diagnosed in the department of Paediatrics, ABUTH, during a period of 4 years, probably represents a small proportion of children with this condition in the community. Since only about 75,000 children are seen annually in the department, we believe there are likely to be many more dying in remote villages.

Tuberculosis is a social disease in which close contact with an infectious person is an important factor in dissemination. There were 42 cases with positive history of contact in the present series. Of these, 36 were below the age of 5 years and had extensive lesions. In 25 cases, the infection was contracted from an older relation with whom the child had been living after being weaned from breast milk. This is not surprising as the practice in this part of Nigeria is to send the weaned child away from his parents to the grandparents who may have active tuberculosis without being aware of it. Those young children who are thus in close contact with infectious adults tend to have disseminated disease (personal observation).

Measles was an antecedent illness in 81 of the cases in the present series. Fifty-eight of these 81 cases were malnourished and had either advanced pulmonary lesion or extrapulmonary disease. Like any serious infection, measles predisposes to protein-energy malnutrition[5] and both conditions can depress cellular immunity, which is very important in tuberculous infection.[6] Intensification of vaccination programmes against measles is therefore, likely to reduce the incidence of tuberculosis in the community. Furthermore, it may be a worthwhile venture to give prophylactic anti-tuberculous therapy to all children whose post-measles pulmonary lesions fail to resolve after 4 weeks of adequate antibiotic therapy.

All types of pulmonary tuberculosis were observed in the present series, irrespective of age. Workers from Nigeria and elsewhere, have reported similar observation.[2 3 7] Pulmonary cavitation in five of our patients co-existed with other lesions namely: miliary spread, hilar and/or paratracheal lymphadenopathy and extrapulmonary lesions indicating true primary but progressive disease. This combination of lesions is said to be associated with poor prognosis.[7] However, two of the five patients are alive. The rest defaulted and efforts to trace them proved abortive.

It is interesting to note that there were no cases of isolated abdominal tuberculosis. Three children with abdominal disease also had pulmonary lesions. This finding confirms an earlier observation that abdominal tuberculosis in children is usually a spill-over from a pulmonary lesion.[8]

Although extrapulmonary tuberculosis accounted for only 12.5% of the 143 cases in the present series, spinal tuberculosis and tuberculous meningitis accounted for 61% and 38% of the 18 cases, respectively. The relatively high incidence of these forms of tuberculosis in Zaria may be due to the fact that these children were not immunised against the infection, since it is known that dissemination of tuberculous infection is more common among non-BCG vaccinated children.[1] Chronic otorrhoea which was a presenting feature in 12 children in the present series is a symptom of tuberculosis that could easily be missed. Children presenting with this complaint should therefore, be investigated for tuberculosis. In a series from Enugu, tubercle bacilli were isolated from three children with chronic otorrhoea.[4]

One hundred and forty-three cases were registered at the clinic, but only 36 completed 12 months' therapy. This large number of defaulters during follow-up is not peculiar to Zaria. Reports from other centres in Nigeria show a similar trend.[3 4] Although organisation of mobile clinics for distribution of drugs to patients in their localities successfully reduced the number of defaulters in Tanzania,[3] this practice is unrealistic in Zaria because of the difficulties we had in tracing defaulters. Confinement in hospitals for long

periods has its shortcomings, since parents tend to abscond as soon as they notice improvement in their children; this is in addition to the inadequate numbers of hospital beds that would be required to implement such a policy. A more realistic approach is to shorten the duration of therapy by using the isoniazid and rifampicin combination as has been suggested by Aderele.[3]

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