

Short reports

Inner city tuberculosis and immunisation policy

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SUMMARY Asian children, excluding recently arrived immigrants, had a similar incidence of tuberculosis to white children in Leeds from 1982-6. Children living in the urban priority area were 2.6 times more likely to develop tuberculosis than those living elsewhere. Selection for infant BCG immunisation should not depend on ethnic group alone.

The tuberculosis notification rate in 1983 for children born in the United Kingdom was 29 per 100 000 for children of Indian ethnic origin and 50 per 100 000 for those of Pakistani or Bangladeshi origin.¹ It is the practice in Leeds, as in other British cities, to offer BCG immunisation to infants of Asian origin. All children with tuberculosis, and all those receiving antituberculous chemoprophylaxis from 1982-6 were studied to determine the epidemiological pattern of the disease in relation to current immunisation policy.

Methods

Case notes were examined for all children from Leeds metropolitan district (total population 710 000) aged 14 years or less who started treatment for active tuberculosis or received antituberculous chemoprophylaxis after contact with tuberculosis during the five year period January 1982 to December 1986. Records were obtained from the Leeds chest clinic and local hospitals. Notifications to the

medical officer (environmental health) and patients identified by hospital activity analysis were traced to ensure that no cases had been missed.

Children who were new immigrants, including one Bangladeshi boy with active disease and seven receiving chemoprophylaxis (six of whom were from the Indian subcontinent), were excluded from the study. All children included in the study had either been born in the United Kingdom or resident in the country for two years or more.

Population figures were obtained from estimates for 1985² which take account of projections from the 1981 census, the 1977-8 national dwelling and housing survey, and the 1981 labourforce survey. The proportion of the population aged 0-14 years was estimated as 34% of people originating from the Indian subcontinent, 26% from the other ethnic groups, and 18% of the white population, based on local 1981 census figures and a previous national study.¹ The urban priority area (total population 200 000) includes the inner city and most of the poorer housing estates. It contains 60% of supplementary benefit claimants, 60% of the unemployed, 75% of the ethnic minority population, but only 28% of the total city population.

Results

A total of 38 active cases and 35 children who were given chemoprophylaxis against tuberculosis were studied. The demographic characteristics of children included in the study are summarised in table 1. The numbers of active and chemoprophylaxis cases

Table 1 Demographic characteristics of children (excluding recently arrived immigrants) with active tuberculosis or receiving antituberculous chemoprophylaxis in Leeds 1982-6

	No of children	Sex M/F	Age (%) in years			Ethnic origin			
			0-4	5-9	10-14	White	Indian sub-continent	Afro-Caribbean	Vietnamese
Active tuberculosis	38	18/20	15 (40)	13 (34)	10 (26)	33	2	2	1
Chemoprophylaxis	35	21/14	14 (40)	10 (29)	11 (31)	31	4	—	—

Table 2 Number of cases of childhood tuberculosis, child population (aged 0-14 years), and mean annual rates by place of residence and ethnic origin in Leeds 1982-6. Figures in bold type refer to active cases, others to children receiving chemoprophylaxis

	Place of residence		Totals	Annual rate per 100 000
	Urban priority area	Non-urban priority area		
Ethnic group:				
Indian	1/4900	1/1600	2/6500	6.2
subcontinent	4/4900	0/1600	4/6500	12.3
Other non-white*	3/3600	0/1300	3/4900	12.2
	0/3600	0/1300	0/4900	0
White	16/31 500	17/89 600	33/121 100	5.5
	20/31 500	11/89 600	31/121 100	5.1
Totals	20/40 000	18/92 500	38/132 500	
	24/40 000	11/92 500	35/132 500	
Annual rate per 100 000	10.0	3.9	5.7	
	12.0	2.4	5.3	

*Two Afro-Caribbean, one Vietnamese.

classified by ethnic group and place of residence, child population estimates, and calculated annual rates for tuberculosis are shown in table 2. Children with active disease whose families originated from the Indian subcontinent had a similar rate (6.2) compared with white children (5.5 per 100 000). Children living in the urban priority area had a rate 2.6 times higher than those living elsewhere in the city (10 compared with 3.9 per 100 000).

Twenty three (60%) of the active cases presented to the chest clinic as contacts of known cases of tuberculosis. Twenty of these contacts had asymptomatic primary lung infections, two had a slight cough, and one had a pleural effusion. Of the remaining 15 active cases, one was referred to the chest clinic because of symptoms suggestive of tuberculosis and one presented to a paediatric clinic with erythema nodosum. The other 13 cases were diagnosed after admission to a paediatric ward: six had pulmonary disease, three had tuberculous lymph nodes, one had both pulmonary and cervical node disease, one had miliary spread and tuberculous meningitis, one had Pott's disease, and one had tuberculous peritonitis.

None of the 21 children with primary complexes and only one of the three children with tuberculous lymph nodes were from ethnic minorities. Of the 11 children with more advanced disease, four (three pulmonary and one Pott's disease) were from ethnic minorities.

None of the active cases had received BCG immunisation. Twenty seven had been Heaf tested before diagnosis. Nineteen had a response of grade

three or more, and of the eight with a grade two response, six were under 5 years of age. Nine children had been Mantoux tested and all showed a positive response except for a one year old with miliary disease who showed a negative response to 1 in 1000 tuberculin. In two children there was no record of a tuberculin test, one had positive sputum microscopy, and the other had typical lymph node histology.

Five of the children receiving chemoprophylaxis had been immunised with BCG, two were infants, and the other three were aged 10, 12, and 13 years. Both infants were not Heaf tested, their mothers had sputum positive pulmonary tuberculosis. The remaining 33 children receiving chemoprophylaxis all had a Heaf test result of grade two or more.

Discussion

Leeds chest clinic provides a diagnostic and therapeutic service for contacts, new immigrants, and those with suspected or proven tuberculosis. Asian infants and those with a family history of tuberculosis are referred by their health visitors to the chest clinic for BCG immunisation by the age of 8 weeks. The uptake of this service is 86%. BCG immunisation is offered in school to all Heaf negative children aged 13 years. In 1986, 12% of Leeds 13 year olds had positive Heaf tests, 81% received BCG, and 7% did not. (P Ainsworth, personal communication).

Since January 1982, children receiving antituberculous chemoprophylaxis have not been notified and have been recorded separately from those with

active tuberculosis. We have studied all active cases and all those receiving chemoprophylaxis for the subsequent five years after excluding recently arrived immigrants. Two important conclusions emerge.

First, although the total number of active cases was small, none had been immunised with BCG. Second, there were very few children from ethnic minorities with active disease and the rate for children whose families originated from the Indian subcontinent was similar to that for white children (table 2). The rate for Asian children is considerably lower than those reported in the 1983 national survey¹ and this is likely to be due partly to a decrease in the numbers of new immigrants, partly to the improved living standards of some Asian communities, but also to the protective effect of BCG immunisation of Asian infants. Neonatal BCG immunisation has been shown to give children an estimated protection against tuberculosis of between 64%³ and 75%.⁴

The results of this study require confirmation from other urban centres, whose ethnic minority communities may have different socioeconomic characteristics. In Blackburn, for example, 89% of notified childhood tuberculosis was among Asians.⁵ One possible source of bias in our study was that ethnic minority children may have been under-represented in the detected cases of tuberculosis due to less good use of the health services. Some support for this possibility is provided by the fact that four of the 11 more advanced cases came from an ethnic minority, but the numbers are too small to make definite conclusions.

Poverty, as shown by residence within a desig-

nated urban priority area, was a better indicator than ethnic group of the risk of tuberculosis (table 2). Selection of infants for BCG immunisation by ethnic group or by family history, while ensuring adequate protection for the immunised, has resulted in a small number of cases occurring in unimmunised children, usually from poorer sections of the city. Any form of selective policy has its problems. It may be wiser to immunise all babies on the postnatal wards, as is the practice in some hospitals,⁴ particularly because of the expected increase in the prevalence of adult tuberculosis associated with AIDS.⁶

We thank the clinicians involved for permission to study children under their care.

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Transient intracranial hypertension of infancy

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SUMMARY Four infants were seen on six separate occasions with febrile illnesses associated with a bulging anterior fontanelle and irritability. They had signs of a transient form of intracranial hypertension.

The irritable infant who presents with a bulging fontanelle and fever may have meningitis. We have recently seen four infants because of a bulging

fontanelle and irritability, associated with poor feeding and fever. None of them had otitis media, meningitis, or an intracranial space occupying lesion and their signs settled within a few days.

CASE 1

A previously healthy 8 month old girl presented with a 24 hour history of vomiting and fretfulness. Examination showed an irritable, febrile infant with a head circumference of 46.0 cm (75th centile), diastasis of cranial sutures, and a bulging anterior