The prevalence of allergic disease in young British-born schoolchildren of different ethnic origin

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SUMMARY. The medical records of all British-born patients of a group practice in Coventry aged five, six, and seven years were examined at the end of 1973, for evidence of asthma, nasal allergy, and allergic eczema. It was found that while there seemed some support for the clinical impression that these conditions were more prevalent among Asian children of these ages than in children of the indigenous population, the differences did not quite reach the traditionally acceptable level of statistical significance.

A high prevalence of these illnesses was present among the small number of children of West Indian origin in the same age range. This prevalence was much higher than in the indigenous and Asian groups and the differences were highly significant statistically.

Introduction

This study is concerned with testing a clinical impression I shared with colleagues that allergic illnesses are more common in children of Asian origin than in children of the indigenous white population.

Morrison Smith, Harding, and Cumming (1971) seem to refute this view on the basis of a questionnaire completed by health visitors at routine school medical examinations in Birmingham. They found, *inter alia*, that Asian children, both those born in the United Kingdom and those born in Asia, had a lower prevalence of asthma and wheezing than children of the indigenous population. This did not apply to Asian children born in Kenya, who appeared to have a prevalence of asthma and wheezing as high as that of children of the indigenous population.

Patients and methods

The medical records of all children born in the British Isles in the years 1966, 1967, and 1968 who were patients of a large general practice in Coventry were examined for evidence of asthma, nasal allergy, and allergic eczema. Children were excluded who had only recently joined the practice list unless their records were sufficiently full to establish whether or not they were subject to allergic illnesses. The number so excluded was small (about 12). The investigation was carried out at the end of 1973 so that the children studied were then five, six, and seven years old. Patterns of Asian immigration and marriage produced enough children at these ages to merit study. By these ages too, the diagnosis of allergy has generally been established.

The practice also served some West Indian negro patients. Although they were not concerned in the original enquiry, it was decided to study their children's records also. Their numbers were small, but their inclusion led to findings of some interest.

Whereas, with the exception of one family with an anglicised name, there was no difficulty in identifying Asian children from the names on their records, a good deal of trouble was involved in identifying West Indian children, since their surnames give no clue to their ethnic origin. Some homes had to be visited when it was otherwise impossible to establish whether the children were European or West Indian. Through the courtesy of the Clerk of the Coventry Executive Council it was possible to establish from his records whether a number of Asian children were British-born and therefore to be included in the survey.

Sibling relationships were recorded in all groups wherever they occurred.

The group practice in which the study was conducted was served by four doctors (five from

October 1973), working at two surgeries. The main surgery is located in a suburban area where the proportion of immigrants is smaller than around the older central urban surgery which serves fewer patients but proportionately more immigrants. The numbers of patients on 1 October 1973 was 11,746.

Allergic illnesses were classified as of asthma, allergic eczema, and nasal allergy. Neither urticaria nor drug allergy was included in the survey. The diagnosis of asthma was regarded as established when at least one of the recurrent attacks of bronchospasm suffered by the patient was afebrile, while the diagnosis of allergic eczema was applied to cases of atopic eczema. In the case of two white, one Asian and one West Indian child there was no current eczema, but there was a clear history of infantile eczema (confirmed by a dermatologist in two cases) which had taken at least one month to clear with appropriate therapy. Persistent watery rhinorrhoea and enlarged pale watery inferior turbinates, with or without accompanying conjunctivitis were the criteria used in the diagnosis of nasal allergy. Since the criteria were the same for all three ethnic groups they were considered valid in a comparative study.

Results

The results of this survey are summarised in table 1. Of 392 white children of indigenous origin 26 (6·6 per cent) suffered or had suffered from allergic disease. Of 85 Asian children, 11 (12·9 per cent) and of 28 West Indian children no fewer than 13 (46·4 per cent) suffered from allergic disease.

Statistically analyses of these findings indicated that the difference between the Asian and indigenous groups was not significant at the five per cent level (normal approximation to the Binomial distribution, two-tailed test, $p=0·08$.) However, the proportion of West Indian sufferers was significantly different from that of the indigenous group (Fisher's exact probability test, two tailed, $p<0·001$).

Table 1 also shows the types of allergic condition in each group of affected children. Asthma was the commonest condition and eczema second in all three groups. There was no evidence to suggest that any ethnic group is likely to suffer from a particular allergy.

TABLE 1

SIZE OF ETHNIC GROUP STUDIED, PREVALENCE OF ALLERGIC ILLNESS AND TYPE OF ALLERGIC ILLNESS IN AFFECTED CHILDREN OF EACH ETHNIC GROUP

Ethnic group	*Number of British born children aged 5–7 in group*	*Number of children with allergic illness*		*Type of allergy*		
				Asthma	*Eczema*	*Nasal*
Indigenous	392	26	*6·6%*	14 *3·6%*	11	7
Asian	85	11	*12·9%*	7 *8·2%*	6	1
West Indian	28	13	*46·4%*	9 *32·1%*	8	1

NOTE: 6 Indigenous, 3 Asian and 5 West Indian children had more than one form of allergic condition.

The sibling relationships in the three groups were as follows: of 44 sets of white siblings there was one set of two brothers, each with allergies and only one single case of allergy among the other pairs. Of 18 sets of Asian siblings three sets had a single sibling each with allergic disease and of five sets of West Indian siblings two sets of these had both members suffering from allergic conditions and three sets had each a single sibling affected. Thus the probability of more than one sibling having allergic disease was less than the probability that a single sibling was a sufferer.

Table 2 summarises the sex distribution of the three groups and of their allergic members. As expected, more boys suffered from allergic conditions than girls. This difference was highly significant (normal approximation to binomial distribution, one tailed test $p<0·001$).

TABLE 2

SEX DISTRIBUTION OF CHILDREN IN ETHNIC GROUPS STUDIED AND OF CHILDREN SUFFERING FROM ALLERGIC ILLNESS

Ethnic group	*Sex distribution of whole group*	*Sex distribution of allergic children*
Indigenous	196 male 196 female	21 male 5 female
Asian	45 male 40 female	8 male 3 female
West Indian	13 male 15 female	7 male 6 female

Discussion

Morrison Smith *et al.* (1971) dealt with asthma alone of the allergic disorders. Of 19,033 European school-children born in the United Kingdom, 4·3 per cent gave a history of asthma in answer to a questionnaire completed by health visitors in 1968-69 (additionally 5·8 per cent gave a history of wheeze), while only 1·1 per cent of 173 Asian school-children born in the United Kingdom gave a history of asthma (in addition to four per cent with a history of wheeze).

In this study 3·6 per cent of 392 white indigenous children had asthma compared with 8·2 per cent of 85 British-born Asian schoolchildren (table 1), thus lending no support to the Birmingham findings.

One wonders whether the Birmingham questionnaire might have been hampered by difficulties of communication presented by Asian mothers with poor English. This suspicion is possibly supported by the finding in the Birmingham survey that Asian schoolchildren born in Kenya, of whom there were 77, had a prevalence of asthma (5·2 per cent) three times as high as the prevalence of asthma (1·7 per cent) in the 296 Asian children born in Asia. I have noticed that Kenya Asians usually speak good English and their response to a questionnaire would naturally be more exact. The Birmingham observers suggested that the higher prevalence among the Kenyans might be due to their higher standards of life and the more temperate climate in which they had lived.

In the West Indian children Morrison Smith *et al.* (1971) found a prevalence of asthma among 689 West Indian negro schoolchildren of all ages born in the U.K. of 6·8 per cent addition to 10·4 per cent wheezing. This compares with a prevalence of asthma in 19,033 European children born in U.K. of 4·3 per cent addition to 5·8 per cent with wheezing. Thus, in the Birmingham series, negro children born in England had a higher prevalence of asthma than the indigenous population.

In this study 9 (32·1 per cent) of 28 West Indian children born in the U.K. had asthma in this practice—a prevalence grossly in excess of that found in both white indigenous and Asian groups. There were no West Indian born children in this age group in the practice to compare with the Birmingham series, in which 273 West Indian born schoolchildren were found to have a lower prevalence of asthma (1·1 per cent) and wheezing (2·9 per cent) than indigenous schoolchildren.

Of the other forms of allergy considered in this study, the relevant literature is equally scanty. A paper by Davis, Marten, and Sarkany (1961) concerns atopic eczema in European and negro West Indian infants in London. They found a strikingly high incidence of eczema among infants of West Indian parents. Approximately 40 per cent of all infants up to the age of two years suffering from infantile eczema at Belgrave Hospital for Children (Kings College Hospital, London) were West Indian. Against this, out of 100 consecutive patients attending the Casualty Department at Belgrave Hospital only nine were West Indian, and only 10·2 per cent of new patients referred for haematological investigation at the same hospital were West Indian. The authors presented some evidence that eczema is rare amongst Jamaicans of predominantly African descent, but accept that the greater disease awareness in this country and the easily

available medical services might be responsible for patients being seen with milder forms of the disease.

Morrison Smith (1973) in a more recent large study of skin tests and atopic allergy carried out at special clinics in Birmingham in 1969, 1970, and 1971, found among 608 asthmatic children over five no statistically significant difference in the incidence of eczema between European and Negro children born in the U.K. He also reported that only two cases of asthma and one case of eczema were detected among 1,040 immigrant children from Asia, Africa, and the West Indies screened at a special clinic before entry to school.

A recently published study (Coffman and Chalmers, 1974) of a sample of 77 patients of all ages suffering from hayfever in a multiracial general practice in North London of about 6,000 patients disclosed that the disease was more prevalent among West Indians, most of whom had arrived in this country as adults, and had not previously suffered from the condition. Among British-born West Indian children aged 5–14, however, the prevalence of hayfever appears to have been lower than among indigenous children of the same age group. They record no hayfever at all among a relatively small number (147 in 1970) of Asian patients of all ages and wherever born.

I found that the high prevalence of eczema among West Indian children in this country was well recognised in their community. A West Indian health visitor told me that it was commonly attributed to the widespread use of paraffin heaters among the West Indian population. Like asthma, eczema it is said is rare in the West Indies.

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I would be glad to hear from general practitioners interested in repeating or extending this study. My address is: Park House, 87 Birmingham Road, Allesley, Coventry CV5 9GT.

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CHIEF MEDICAL OFFICER'S REPORT

The Chief Medical Officer of the Department of Health and Social Security reporting for the year 1973—*On the State of the Public Health*—notes that the birthrate has fallen to 13 per 1,000 population in England and Wales in 1973, which is the lowest rate ever recorded in peace time.

Lung cancer has become the second commonest cause of cancer mortality in women.

The number of working days lost through sickness rose in 1973 over 1972, bronchitis being the greatest single cause of incapacity. There was an increase in notified reports of both early syphillis and gonorrhea compared with the previous year.

At the end of 1973, 78 per cent of health visitors and 77 per cent of home nurses were working in close association with general practitioners.

Recruitment to general practice still gave cause for concern—the growth in the number of unrestricted principals in 1973 was barely half that of 1972 and less than half this growth was of doctors born in Great Britain.