Anaemia in Asians in London

R. P. BRITT*
F.R.C.Path

J. E. KEIL‡
Dr.P.H.

YVONNE HOLLIS†
M.B., B.S., D.P.H.

M. WEINRICH

BARBARA W. KEIL‡

*Department of Haematology, Hillingdon Hospital, Uxbridge, Middlesex UB8 3NN, †North West Thames Regional Health Authority, London and ‡Department of Epidemiology and Biostatistics, School of Public Health, University of South Carolina

Summary

Many Asian subjects were seen in London in the early 1970s with megaloblastic anaemia; in a majority of cases, this was dietary in origin. Pernicious anaemia occurs in Asians, but the incidence is probably lower than in Caucasians. Megaloblastic anaemia is now less common in this group, but a population survey in Punjabi females in the late 1970's showed anaemia in 32%, and one or more features of iron deficiency in 76%.

KEY WORDS: nutritional megaloblastic anaemia, pernicious anaemia.

Introduction

We describe experience extending back over the past 15 years in the study of anaemia among Asians living in West London.

During the late 1960s and early 1970s, a large number of Asians emigrated from northern India to west London with a concentration in the Southall district of the London borough of Ealing. The majority came from the villages in the Punjab around Ludhiana, Jullunder and Amritsar, and tended to be the poorer members of those communities. It is estimated that there are in total some 25000 subjects, and the 1976 census showed in the Northcote Ward of Southall that 53.6% of the residents were from the Asian sub-continent.

For a period of 6 years from 1968-1974, many cases of severe megaloblastic anaemia were seen, a proportion of whom required hospital admission (Britt, Harper and Spray, 1971). Fig. 1 compares 30 consecutive cases with 30 Caucasian subjects seen at that time with megaloblastic anaemia. It is clearly seen that both the mean age and mean haemoglobin

levels are much lower for the Asian patients. The majority of the Caucasians were cases of pernicious anaemia. In a large number of Asian megaloblastic anaemias, full investigation was carried out including full blood count, biochemical profile, blood vitamin assays, bone marrow examination and gastrointestinal investigation. The latter included barium X-ray studies, gastric juice analysis following pentagastrin stimulation, and peroral gastric and jejunal mucosal biopsy. Therapeutic trials of vitamin therapy were instituted, and in some cases these involved the use of oral physiological dosage or dietary modification. The majority of patients were shown to have dietary megaloblastic anaemia. In 70 cases, 20 were deficient of vitamin B₁₂, 11 of folic acid, 19 of both vitamins and, in 20 cases, the nature of the deficiency was uncertain.

A small number of the subjects with megaloblastic anaemia were shown to have a disorder other than dietary deficiency. Of 9 such cases, 6 had pernicious anaemia, and one each had gluten-induced enteropathy, tropical sprue and a post-gastrectomy state. Some of the details of these patients with pernicious anaemia are shown in Table 1 and of interest is the fact that 3 out of 6 were under the age of 40, and that 5 out of 6 either ate very little meat or were vegetarian. The case of tropical sprue was a Punjabi who had recently come to Britain from Singapore where he had spent the last 20 years.

Methods

During the mid-1970s, megaloblastic anaemia declined dramatically and in late 1978 the opportunity arose to carry out a random population blood test survey in Punjabi immigrants in association with a blood pressure study (Keil *et al.*, 1980). The target

FIG. 1. The haemoglobin (Hb) level and age at presentation of 30 cases of megaloblastic anaemia in Asians compared with 30 cases in white Caucasians.

population was all female migrants over the age of 11 in 11 enumeration districts of the Northcote Ward in the Southall district. The eventual number interviewed was 251 (93.9% of those approached) and 218 (87%) consented to the taking of a venous blood sample. Interviews were conducted with the participants with the aid of interpreters where necessary, and from the information obtained they were classified into occupation groups: (1) students born in Britain; (2) students coming to Britain with parents; (3) housewives going out to work; (4) housewives staying at home; and dietary groups: (I) beef eaters; (II) meat but not beef; (III) lactovegetarian.

The blood samples were processed through the

Coulter 'S' Counter for haemoglobin, mean cell volume (MCV), mean corpuscular haemoglobin (MCH), and mean corpuscular haemoglobin concentration (MCHC). A stained blood film was examined and the serum iron and total iron binding capacity were determined. Table 2 shows the breakdown of the occupation and dietary groups. Eight of the respondents had not emigrated direct from the Punjab State, and there were 38 who were progeny of migrants and had not lived abroad. No vegans were seen and only 1 in 4 of the subjects were vegetarian. The change taking place in dietary habits can be seen by comparing the details of the students with the housewives. The younger generation showed a greater proportion of beef-eaters and a smaller proportion of vegetarians.

Results

Sixty-nine cases of anaemia were found among the 213 bloods examined. The MCV and the indices showed a predominance of an iron deficiency pattern further confirmed by the reduced serum iron and % saturation of the iron binding capacity. The statistics of these various tests are shown in Table 3. It can be seen that over three-quarters of Punjabi females over 11 years of age have one or more features of iron deficiency. There was no significant difference in any of the parameters between any of the population or dietary groups except a lower mean level of serum iron in the students who had emigrated to Britain. In only one subject was the MCV raised, and in only 5 subjects, 4 of whom had iron deficiency, was there evidence in the blood film of megaloblastosis.

TABLE 1. Details of the 6 cases of pernicious anaemia in Asians

Age	Sex	Time (years) in U.K.	IF antibody*	PC antibody†	Diet
34	F	3	+	+	Vegetarian
23	F	1 month	—	+	Vegetarian
45	M	2	+	+	Non-vegetarian
69	M	5	—	—	Occasional meat
65	M	3	+	—	Vegetarian
30	F	8	+	—	Occasional meat

*IF = intrinsic factor; †PC = parietal cell.

TABLE 2. Table of dietary and occupation groups of 251 Punjabi female subjects [number (%)]

	I Beefeaters	II No beef	III Lactovegetarian	Total
Students born in Britain	12 (40)	17 (57)	1 (3)	30 (12)
Students from Asia	16 (50)	10 (31)	6 (19)	32 (13)
Housewives out to work	10 (12)	52 (60)	24 (28)	86 (34)
Housewives staying at home	8 (8)	66 (64)	29 (28)	103 (41)
Total	46 (18)	145 (58)	60 (24)	251

TABLE 3. The frequency of abnormalities in Punjab females in Southall

	Number tested	Number abnormal [(%)]
Haemoglobin <12.0 g/dl	217	69 (31.9)
Mean cell volume <76 fl	217	57 (24.4)
Mean corpuscular haemoglobin <27 pg	217	88 (40.5)
Serum iron <10 µmol/litre	177	131 (76.5)
Saturation TIBC <16 µmol/litre	169	110 (65)

Discussion

Nutritional megaloblastic anaemia is uncommon in Caucasians in this country, being virtually confined to psychiatric and elderly subjects. It was found in many Asians in London in the early 1970s, but the incidence has fallen considerably. It was assumed that the deficiency resulted from a lower vitamin content of the foods in their staple diet in Britain compared with the same foods in India. Vitamin B₁₂ deficiency was considered rare in the area of their origin in the Punjab. Baker and his colleagues (Albert, Mathan and Baker, 1980) suggested the aetiology was more subtle and resulted from a change of gastrointestinal flora resultant from a changed environment. Nevertheless, the resolution of the problem has been related to changing dietary habits and this has been confirmed by the population survey. The tastes for different foods acquired at school meals and in workers' canteens have been taken back into the Indian homes. Pernicious anaemia is rare in Asians, and up until 1970, only 13 cases could be found in the literature (Britt, Stranc and Harper, 1970). In a period of 5 years, from 1969–1974, 6 Asian cases were diagnosed but what is surprising is that no further cases have been seen

since in spite of careful search. Coeliac disease does occur in Asians although its incidence is uncertain (Nelson, McNeish and Anderson, 1973).

There have been no recent population surveys of anaemia in Britain with which to compare the results reported above. Anaemia among most sections of the population in India is common. In one survey of village women (Baker and Mathan, 1975) the prevalence was 81%. The high frequency of iron deficiency anaemia in Asian women in London warrants consideration of this possibility in other Asian groups in Britain. Although many of those who were deficient were meat eaters, undoubtedly, the average intake was considerably less than indigenous Caucasians. On closer questioning, many Asians claiming to be meat eaters were found to eat meat once a week only. The possibility of malabsorption or intestinal parasites contributing to the iron deficiency has to be considered, but both conditions are now rare and the majority of the iron deficiency is of nutritional origin and could be resolved by dietary adjustment. We have some evidence of changing dietary habits, and it will be of considerable interest to re-survey after a further interval.

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