Are There Ethnic Differences in Inflammatory Bowel Disease?

A Keshavarzian, S Gupta, S H Saverymuttu, H J F Hodgson

Department of Medicine, Royal Postgraduate Medical School, Hammersmith Hospital, Duconne Road, London W12 OHS

Abstract
In a retrospective study in a London hospital, we have determined the types of idiopathic inflammatory bowel disease (IBD) present in patients of two immigrant groups in England and compared them with Europids. Of the 259 patients attending a single IBD clinic, 10-8% were Indian (from the subcontinent or East Africa) and 3.6% Caribbean. The proportion of immigrants attending the IBD clinic was similar to those attending the chest and antenatal clinics in the same hospital.

Amongst the Indians 78% had ulcerative colitis (UC), 22% had Crohn's disease (CD). Amongst the West Indians 22% had UC, 78% had CD. Amongst Europids 42% had UC, 58% had CD. Ulcerative colitis was significantly more common amongst Indian patients with IBD than amongst Europids or West Indians. The data indicate that the pattern of IBD in immigrant racial groups differs between Indians and West Indians. Whether this reflects genetic or environmental factors remains uncertain.

Key words: Inflammatory bowel disease, ethnic differences, ulcerative colitis, Crohn's disease, Europids, Indians, West Indians.

Introduction
Environmental, racial and familial factors are all relevant to the epidemiology of inflammatory bowel disease (IBD). A study of IBD in immigrant groups might therefore be rewarding. Although IBD has been described in immigrant West Indians and Indians residing in the UK, the magnitude of the problem and the type of inflammatory bowel disease have not been studied. We report here the proportion of West Indians, Indians and Europids in one IBD clinic and the relative proportion of ulcerative colitis (UC) and Crohn's disease (CD) in these ethnic groups.

Material and Methods
The case notes of all patients who attended the IBD clinic at Hammersmith hospital between 1978 and 1983 were retrospectively studied and the diagnoses and ethnic origin of patients were determined. The diagnoses were based on accepted clinical, radiological and histological criteria. The West Indians and Indians were identified and their age, sex, duration of stay in the UK, smoking history, presentation and the course of disease were noted. The proportion of patients within each ethnic group was determined. We also identified the proportion of immigrants attending the respiratory function laboratory and the antenatal clinic in this hospital. Significance of differences was assessed using chi squared analysis and Fisher's two tailed exact probability test when numbers were small.

Results
A total of 259 patients with IBD were identified—137 with Crohn's disease and 113 with ulcerative colitis. Twenty seven (10.8%) patients were Indian, nine (3.6%) West Indians, and the remaining 214 (85.6%) Europids (Table 1). The proportion of immigrants attending the IBD clinic was similar to that attending the antenatal clinic and the lung function laboratory (Europids 81.85.6%; Indians and West Indians 14.4-19.5%). The proportion of ulcerative colitis and Crohn's disease varied strikingly between the three ethnic groups (Table 1). In Indians, ulcerative colitis was more frequent than Crohn's disease as compared with Europids ($\chi^2 = 12.31$, p<0.001) or with West Indians (p<0.02). The difference in the relative proportions of ulcerative colitis and Crohn's disease in Europids and West Indians was not statistically significant ($\chi^2 = 1.4$, p>0.01).

Table 1: Inflammatory bowel disease in ethnic groups in UK

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>No (%)</th>
<th>Total No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Europid</td>
<td>Indian</td>
</tr>
<tr>
<td>Crohn's disease</td>
<td>124 (48)</td>
<td>6 (22)</td>
</tr>
<tr>
<td>Ulcerative colitis</td>
<td>90 (42)</td>
<td>21 (78)</td>
</tr>
<tr>
<td></td>
<td>214 (85.6)</td>
<td>27 (10.8)</td>
</tr>
</tbody>
</table>

The length of time that the two immigrant groups had been present in the UK was compared (Table 2). There was no significant overall difference between the length of time that these two groups had been present in the UK. Within the Indian patients, there was a tendency for those with Crohn's disease to have been present in the UK for a longer period of time but the numbers were too small for statistical analysis. There was no such difference amongst the West Indians.

In both groups the majority of patients were non smokers, with only two smokers in each group.

All ethnic groups showed the expected wide variation in the severity of presentation, and courses ranged from mild to severe. Surgery was required in three West Indians with Crohn's disease, two Indians with Crohn's disease, and one Indian with ulcerative colitis, over a mean follow up of 5.5 (±4.5 SD) years.
Table 2: Clinical data of patients with inflammatory bowel disease

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>Diagnosis</th>
<th>No</th>
<th>Male/Female</th>
<th>Mean Age (range)</th>
<th>Years in UK</th>
<th>Mean ± SD</th>
<th>Group</th>
<th>Non smokers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indian</td>
<td>UC</td>
<td>21</td>
<td>11/10</td>
<td>40 (25-60)</td>
<td>12.4 (3-20)</td>
<td>14.6 ± 6.2</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CD</td>
<td>6</td>
<td>5/1</td>
<td>42 (24-74)</td>
<td>19.8 (15-26)</td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>West Indian</td>
<td>UC</td>
<td>2</td>
<td>0/2</td>
<td>22 (22-26)</td>
<td>11.0</td>
<td>11.8 ± 4.1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CD</td>
<td>7</td>
<td>2/5</td>
<td>33 (18-57)</td>
<td>11.2 (4-18)</td>
<td></td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Discussion

To define the relative incidence of inflammatory bowel disease as a whole, and ulcerative colitis and Crohn's disease specifically, amongst the immigrant population as compared with the indigenous population, a population survey is required. This preliminary study clearly does not fulfill the criteria required to define the incidence of inflammatory bowel disease amongst patients of differing ethnic origins. Nonetheless, in a retrospective study of all patients attending an inflammatory bowel disease clinic in central London, there were no gross differences in the proportion of immigrant patients compared with two other general clinics in the hospital, including an antenatal clinic. This suggests that there is no striking difference in the frequency of inflammatory bowel disease amongst these immigrant groups compared with the European indigenous population. Data from the West Indies and India, although similarly not offering firm incidence data in populations, strongly suggests that the incidence of inflammatory bowel disease is significantly lower in these populations in those geographic areas. This higher incidence of IBD in a given ethnic group in a more westernized area is strikingly similar to data on Ashkenazi Jews. For both ulcerative colitis and Crohn’s disease it is clear that, amongst the Jews, the incidence of inflammatory bowel disease is significantly higher amongst Jews in the United States than it is amongst Israeli Jews, which is in turn higher than in those of Middle Eastern origin. This pattern is reminiscent also of the increasing incidence of Crohn’s disease in urbanized areas compared with rural, and contrasts with the constant level of a purely genetically determined trait.

In addition to suggesting that these two immigrant groups may be more likely to develop inflammatory bowel disease in the United Kingdom, this study provides evidence of the striking difference in the frequency of Crohn’s disease and ulcerative colitis between Indians and West Indians. Clearly this requires confirmation by studies from other centres. If substantiated, many explanations for this difference might be entertained. Recent evidence indicates that the incidence of smoking may vary strikingly between UC and CD patients, and may predate the development of these. In this study, however, neither the length of time in the United Kingdom nor the incidence of smoking is an obvious explanation for this difference.

The greater incidence of inflammatory bowel disease amongst these immigrant groups in the United Kingdom, and the differences in pattern of non-specific inflammatory bowel disease seen in them, emphasize again the combination of genetic and environmental factors leading to the expression of inflammatory bowel disease. A study of dietary habits in these two groups before and after immigration might be of interest.

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References
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