

Inflammatory bowel disease in coloured Middle East and black African immigrant population groups: individual and familial cases

K.H. Katsanos, E.V. Tsianos

INTRODUCTION

Studies on the epidemiology of inflammatory bowel disease (IBD) can provide important input into the incidence and prevalence of the disease but may also lead to a variety of interesting scenarios regarding disease etio-pathogenesis.

Both ulcerative colitis (UC) and Crohn's disease (CD) appear to be more common in some industrialized countries such as Scandinavia, United Kingdom and North America and less common in Central and Southern Europe, Asia and Africa.¹

The epidemiology of CD was investigated among ethnic groups in a 2-million-member health maintenance organisation² and it has been shown that prevalence rates for Hispanics and Asians were much lower than those for whites and blacks. Inflammatory bowel disease seems to be less frequent in coloured and black population groups of Africa and the Middle East compared to Caucasians living in the Middle East, Europe and USA. Restricted bibliography also supports that in countries with mixed population (black, coloured and white), the incidence of Crohn's disease and ulcerative colitis seems to

be higher in white population groups as compared to coloured and black population groups.^{3,4}

Migration studies showed that in Israel the incidence of IBD among European and American immigrants differs from those who immigrated from Asia and Africa. The incidence among native born Israeli Jews lies between the two immigrant groups. It is also noteworthy that IBD in coloured and black immigrant groups seems to have significantly lower incidence compared to native white population groups in the land of immigration.⁴ A higher incidence of IBD is traditionally associated with a higher average family income and a smaller average family size. Along with the rarity of information on IBD epidemiology in African countries or of African immigrants there is no available information on familial inflammatory bowel disease occurrence in coloured or black refugee populations.

All these issues regarding the true impact of race, ethnicity and immigration in IBD incidence remains unanswered as many basic issues still remain undefined: IBD incidence in Africa and the Middle East with figures based on population studies, prospective case-control immigration studies with case ascertainment and follow up, accessibility to IBD diagnostic facilities and finally reliable assessment of morbidity and mortality of the population under investigation.

In this manuscript we review the existing, although restricted, literature on IBD epidemiology of coloured and black immigrant populations and we further discuss issues that may be worth further investigation in future epidemiological research projects.

Key words: Inflammatory bowel disease, African immigrants, coloured immigrants ulcerative colitis, Crohn's disease, family cases

1st Department of Internal Medicine (Hepato-Gastroenterology Unit), Medical School, University of Ioannina

Author for correspondence:

Dr Epameinondas V. Tsianos, Professor of Internal Medicine, 1st Department of Internal Medicine, Medical School, University of Ioannina, Leoforos Panepistimiou, 451 10 Ioannina, Greece, Tel: 0030-26510-097501, Fax: 00-30-26510-097016, e-mail: etsianos@cc.uoi.gr

Abbreviations

IBD = Inflammatory bowel disease
UC = ulcerative colitis
CD = Crohn's disease

2. IBD in coloured and black population groups in Africa and the Middle East

IBD has an extremely low incidence in black Africa according to the available restricted literature. Nearly one year ago the first case of Crohn's disease was reported in Cote-d' Ivoire.⁵

Ulcerative colitis is also rare in black populations of Sub-Saharan African; only 18 cases were reported up to 1975 and in a later study⁶ twenty-two IBD cases out of 1,2 million sub-Saharan inhabitants treated as outpatients or admitted in mission hospitals have been diagnosed. In the greater Cape Town area, the incidence of CD and UC was higher in white population groups compared to coloured and black population groups. Black population groups had significantly lower IBD incidence compared to coloured population groups.⁷

In South Africa the rarity of inflammatory bowel disease in rural blacks compared with whites affords valuable etiological information.⁸ Reasons for the uncommonness of IBD in blacks are not known but consumption of their still largely traditional diet, insufficient exposure to environmental changes linked with urbanization and genetic factors may be responsible. All black patients reported in this series were urbanized, belonged to upper social and educational strata and consumed a western, or partially westernized diet.⁹ The progressive 'westernization' of the diets and lifestyles of less-privileged populations is likely to be associated with increases in the incidence of IBD. In these populations intestinal tuberculosis still remains a quite frequent diagnosis.¹⁰

In the Middle East, IBD in coloured population groups is lower compared to the immigrant population groups of Caucasian origin. It is of importance to mention here that in patients with Jewish ethnicity IBD is highly prevalent compared to other neighbouring ethnicities.

However the ethnicity seems not to be the only determinant of IBD incidence in Jews, as race seems to play an equally important role; Caucasian-born Jews seem to have higher incidence of Crohn's disease compared to Asian or African-born Jews. In a study¹¹ in one of the northern districts of Israel (Kinneret) both prevalence and incidence rates of ulcerative colitis were 2.5 times higher among Jews who have immigrated to Israel in the last century from various countries than among native Arabs. In addition, in a southern Israeli retrospective study¹² it was shown that IBD had a significantly lower incidence in a Bedouin Arab population compared to the Jewish population. In another study from the same

region¹³ and also from central Israel,¹⁴ ulcerative colitis and Crohn's disease were commoner in European-American-born Jews compared to Asian-African-born Jews.

3. IBD in coloured and black population groups in USA and Canada

The incidence of IBD in African Americans is similar to white Americans in USA. According to data from the USA, IBD rates are similar in Afro-American and Caucasian populations¹⁵ and a study¹⁶ showed that inflammatory bowel disease in African-American children living in Georgia may be more common than previously reported.

However, in the USA there is a varying incidence of IBD in the minority populations. In a study of 148 IBD patients in Texas it was shown that African Americans and whites predominantly had CD whereas Mexican Americans predominantly had UC.^{17,18} In addition African Americans had a significantly higher incidence of IBD-related arthritis and uveitis compared to whites with CD. All Mexican Americans with UC had positive p-ANCA compared to only 40% of whites. The authors concluded that there are significant differences in IBD subtypes and serologic markers among racial/ethnic groups in the United States. In the same study, a family history of IBD was more common in whites than in black Americans. However this was a referral center and not a population based study and the total number of patients included in our point of view was comparatively low (148 patients).

The increasing incidence of IBD in minority populations in the USA has been suggested to reflect changes in the accessibility of health care and, consequently a more reliable estimation of IBD figures in these minority populations needs standardized accessibility to health care and IBD diagnostic facilities. In addition, probable environmental changes resulting in the final diagnosis of IBD phenotype can only be speculated after some decades of careful prospective follow up.¹⁷ To answer whether environment is more important than genetic predisposition to IBD occurrence we feel that we should expect IBD studies in the future with black or colored immigrants to report an increase in incidence of individual but not of familial cases.

In a multicenter study¹⁹ in the USA it has been shown that phenotypic features of CD are similar among African American and Hispanic children compared with white children. CARD15 mutations are not increased among African American and Hispanic children within the general population. Further genetic studies are required to determine the relationship of genotype to var-

ious ethnic and racial groups.

In a study with 345 surgical CD cases²⁰ there was no significant difference in incidence and mean number of fistulas at disease presentation, the number of operations for CD, or family history of IBD among blacks and whites. However black females presented more frequently with inflammatory symptoms while white females presented more frequently with obstructive symptoms.

In another multicenter study³ 145 blacks with CD were matched to 407 whites with CD. The authors concluded that black and white patients have similar reported disease presentation and course and contrast with prior reports suggesting a more severe disease course among black patients. Again in this study we have to stress the possible differences in accessibility to health care.

In Canada, aboriginal Canadians have significantly lower rates of both Crohn's disease and ulcerative colitis compared to native Caucasians in the Canadian province of Manitoba.²¹

For immigrants, the mean duration of residence in Canada before developing IBD was 8.9 years for Crohn's disease patients and 13.5 years for ulcerative colitis patients. No differences were noticed in ANCA seropositive or seronegative immigrant patients regarding age, sex, birth or duration of residence in Canada.²²

4. IBD in coloured and black immigrants in Europe

In many European countries there is an adequate number coloured and black immigrant ethnicities of allowing epidemiological observation of IBD.

In Hungary, there are also some observations regarding the influence of racial factors with Roma (Gypsy) population having less than half of the IBD incidence of the rest of the population.²³ Dietary influence and also possible cultural influences may play an important role, according to the authors.

An epidemiological study of Crohn's disease in Leiden, the Netherlands showed that the lack of Crohn's disease cases in the migrant population almost reached significant levels when compared to the native population. The authors, however, stress the need for studies in locations with a higher migrant population in order to clarify this issue.²⁴

There is also a general feeling that the risk of IBD in the coloured and black immigrants increases significantly after the first decade of migration to Europe.

In UK, over a 15-year period only 6 patients of Afro-Caribbean origin presented with ulcerative colitis from a community of this ethnic extraction numbering 47,000 persons.²⁵ In Bangladeshis in East London, the incidence of IBD has increased and that of abdominal tuberculosis has fallen over the last decade.²⁶

In Birmingham, in a study with 44 Asian immigrants and 44 age- and sex-matched white Caucasians, all of them being diagnosed with ulcerative colitis, it has been shown that the age of onset of UC was related to age at immigration with a mean interval of 11 years.²⁷

In a three-year prospective study²⁸ among Europeans and first- and second-generation South Asians in Leicester it was shown that extensive colitis was commoner in second-generation South Asian migrants than in the first generation and was comparable to the European community. The authors suggest that in immigrant populations ulcerative colitis patterns follow of indigenous those population after only one generation and that they will require monitoring over the next decade.

It seems that prolonged immigration, probably more than a decade, or the second generation of coloured or black immigrants share the same risk of developing IBD as the native Caucasian population. However, all these studies are based on a very restricted number of cases and lack substantial follow up.

5. Familial IBD cases in coloured and black immigrants

In Canada, the first reported instance of familial Crohn's disease in an immigrant population was reported four years ago; it is a report of an Indo-Canadian family in which all members developed the disease after prolonged residence in Canada.²⁹ According to authors this immigrant family case illustrates potential biases in genetically based studies of CD that rely solely on phenotypic expression.

In other words, it seems that many people might have IBD in their genetic background but either they never express it phenotypically or they express it only under special environmental circumstances such as in the land of immigration. Probably these special environmental circumstances need to daily, or at least frequently affect the predisposed individual over many years before IBD diagnosis is made.

Conclusions and etiopathogenetic implications

A racial influence on the prevalence of IBD is strongly

indicated in emerging available literature. In the same countries, blacks seem to be less affected than whites and the Jewish population is at higher risk everywhere. It is also noteworthy to mention that although the incidence of IBD among blacks in Africa is low, infection rates are high while life expectancy is lower compared to that of developed countries.

Interpretation of such epidemiological data on racial, ethnic and familial variations in coloured or black immigrant populations compared to Caucasians must be done with caution as IBD diagnostic facilities in some African countries are not yet largely available. In addition, it has to be emphasized that there is a significant lack of sound IBD epidemiological studies in African countries. Furthermore, the effect of migration towards a more accessible health care system has not been adequately addressed in the great majority of available published studies.

Many theories to explain ethnicity and race discrepancies in IBD have so far been addressed: the increased incidence of tuberculosis and other gastrointestinal tract infectious diseases in Africa, the different dietary habits including the consumption of unpasteurized milk and the absence of the "westernized" way of life including fast-food alimentation in the majority of Asian and African population groups.

'Westernized' seems to be more determinant than 'industrialized' because in highly-industrialized Asian countries such as Japan and Korea, IBD incidence is still low, but increasing.⁴ There have also been observations that IBD is rare where lactose malabsorption is highly prevalent. It is noteworthy that in Asia and Africa the vast majority of the population is lactose intolerant.

There is also a difference between metropolitan and rural regions; IBD occurs more often in cities than in villages. Prospective studies of this context are lacking as it is difficult to organize and successfully accomplish this kind of a prospective, population-based study.

Careful attention to genetic, environmental and socioeconomic factors must be accounted for in these studies. To conduct a sound epidemiological study several quality criteria have to be applied; in our point of view the most important parameters of a high quality epidemiological study is that this study must be population based, must be performed in a well-defined geographical region with a controlled migration and population exchange program and gastroenterological services of a high quality. A referral study center experienced in this

kind of epidemiological IBD study must orchestrate, analyze and carefully interpret all final outcomes.

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Authors notice: The incidence of IBD Greek immigrants in Australia and New Zealand upon arrival and during the first two decades of immigration is lower compared to the native population but in the third decade or after one generation it increases significantly reaching figures of the native Australian population. The second or third generation of Greek immigrants to Australia tend to have the same incidence of IBD as native Australians (K.H.K, personal communication).

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