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## Original Research

# Apparent discrimination in the provision of biologic therapy to patients with Crohn's disease according to ethnicity



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## ABSTRACT

**Objectives:** The objective of the study was to investigate whether patients from a South Asian ethnic background who had Crohn's disease received equivalent access to therapy with biologics compared to patients with an English background.

**Study design:** The study was retrospective and covered the period 2008 to 2012. It was based on a register of all patients with Crohn's disease in Leicestershire who are treated with biologics. The prevalence of Crohn's disease in Leicestershire amongst South Asian and English patients was known from earlier studies and from these data it was possible to make corrections to allow for the difference in frequency of the condition between the two communities.

**Methods:** All adult patients who received biologics for treatment of Crohn's disease in Leicestershire between 2008 and 2012 were reviewed and their gender and ethnicity noted as well as whether they had received infliximab or adalimumab. The expected numbers of patients who should have received these therapies were calculated in two ways:

- i. The proportion of the total population of cases based on prevalence data (the preferred method);
- ii. The proportion who should have received the treatment based on the population distribution within Leicester and Leicestershire.

**Results:** One hundred and twenty six patients with Crohn's disease who received treatment with biologics were European and 13 South Asian. The patients' gender was also noted and 67 European patients (53%) were female as were six Asians (46%). Based on prevalence data, the expected distribution of the treatment would have been for 97 of the patients to have been European and 42 to have been South Asian. If 126 European patients warranted treatment, on this basis the expected number of South Asian patients in need of biologic therapy would have been 55. Based on the smaller predicted number of South Asian patients (42) the difference is significant at  $P < 0.0001$  [Proportion difference = 0.69 (95% confidence interval = 0.539278–0.809576)]. For the difference to be extinguished the number of English patients who should have received biologic therapy would have been as low as between 30 and 39 cases (based on the calculated proportion of 97 and the actual figure of

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126 European patients respectively). Based on a population composition, rather than prevalence data, in which 24% of the Leicester community should have been of South Asian origin, 33 patients would have received biologics compared with 92 patients of English origin (66%). This is significantly different to the 13 patients who did receive treatment ( $z = -3.2$ ,  $P < 0.001$ ).

**Conclusions:** Suggested reasons for these differences have included concerns about the animal origins of infliximab as well as difficulties associated with accessing the service, such as the provision of information in an appropriate language through appropriate media. For those who come from groups with significant social deprivation there is often a readiness to accept more limited clinical services. However, such differences themselves, are examples of discrimination in clinical practice.

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## Introduction

The introduction of biological therapy for Crohn's disease has revolutionised the clinical management of this condition. Its role was recognised by all gastroenterologists, although ease of access to this form of treatment may have varied from region to region within the UK. The development of Technical Appraisals by NICE on the use of adalimumab and infliximab has ensured that the rationale behind use of these treatments is clear and evidence based. Against such a background it would be hoped that discrepancies in treatment would be abolished and that access would be independent of social deprivation, ethnicity, gender or religious affiliation. Unfortunately work on access to colorectal cancer screening has shown that discrepancies in the delivery of care exist.<sup>1</sup> Uptake of colonoscopy was significantly lower among Asians with a positive FOB test result (54.9% vs 74.4% for non-Asians). Even when other factors such as deprivation were taken into account, the colonoscopy uptake rate for the whole Asian group was half that of non-Asians. Particular groups such as the Hindu-Gujeratis and Muslims had colonoscopy uptakes one third of the non-Asian population.<sup>1</sup> There has been considerable speculation on the reasons for such differences including the role of social deprivation,<sup>2</sup> communication barriers<sup>3</sup> and religious discrimination.<sup>4</sup> A review of the care received by South Asian patients with ulcerative colitis in the decade subsequent to their diagnosis showed that they were seen less often by senior clinicians, underwent fewer surveillance endoscopies and were discharged from follow-up more frequently.<sup>5</sup> Against this background of discrepancies in care in the UK, an audit of treatment with biologics for Crohn's disease was undertaken. Another of the driving factors was the fact that in both Atlanta<sup>6</sup> and Baltimore<sup>7</sup> studies have shown that African Americans are between two and three times less likely to receive biologic therapy than white patients. Similarly Hispanics in Miami were less likely to receive this form of treatment<sup>8</sup>

## Method

Data for the period 2008 to 2012 were collected from a central register for these patients with Crohn's Disease. This register

does not record details of patients for whom biologic therapy was considered inappropriate. Data collected included ethnicity and gender together with details on whether treatment was with infliximab or adalimumab. In order to make some comparison with other specialties, enquiries were also made as to whether comparable registers for the use of biologics in conditions such as rheumatoid arthritis and psoriasis existed in Leicestershire and they did not. In addition there are no data on the prevalence of these conditions locally or nationally or by ethnicity in the UK. The absence of such data would also have prevented an assessment of the likely numbers of patients from different communities with rheumatological or dermatological conditions who should have received biologic therapy.

Data on the prevalence of inflammatory bowel disease, as opposed to its incidence, in the UK is limited. In the 1970s figures of 56/10<sup>5</sup> were reported from Newport in South Wales.<sup>9</sup> During the 1990s the standardised prevalence of Crohn's disease in Europeans in Leicester was 75.8/10<sup>5</sup> and among South Asians 33.2/10<sup>5</sup>.<sup>10</sup> By the mid-2000s the point prevalence in Tayside, Scotland was as high as 157/10<sup>5</sup>.<sup>11</sup> However, the Scottish data did not include a breakdown by ethnicity.

Using these data from Leicester the expected number of patients of South Asian origin was calculated as a proportion of the total cohort. In the 1990s the proportion of patients from the South Asian community was 0.3. A second calculation was made based on the population distribution within Leicestershire, with conservative estimates placing the South Asian population at 24% compared to 66% for the English community, with 10% of other ethnicities. Statistical comparisons of the actual and expected frequencies were compared using Stats Direct software.

## Results

Between 2008 and 2012, 139 patients with Crohn's disease received biologic therapy in Leicester. One hundred and twenty six were European and 13 South Asian. The patients' gender was also noted and 67 European patients (53%) were female as were six Asians (46%).

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