On the Question of Ethnicity and Its Impact on IBD-Related Outcomes

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The global incidence of inflammatory bowel disease (IBD) has risen steadily over the last half century [1]. Previously considered a disease which predominantly afflicted Caucasians in industrialized countries, IBD is being increasingly reported in developing countries as they become “Westernized,” supporting the importance of environmental factors in disease pathogenesis [1, 2]. Moreover, rates of IBD among immigrant and minority populations in Canada and several western European countries are rising [2, 3]. Though population-based studies in the United States are lacking, one recent study utilizing the National Inpatient Sample (a large nationally-representative database of hospital admissions), demonstrated a temporal increase in non-white minority patients hospitalized for IBD over the last decades [4].

Within the United States, Hispanics are amongst the largest and fastest-growing minority groups, currently accounting for 16 % of the US population. Data regarding ethnic variations of disease epidemiology and phenotype amongst Hispanic IBD patients have been limited, with available literature inconsistent. For instance, there is conflicting data on whether Hispanics have higher or lower rates of Crohn’s disease [5–7], perianal complications [6, 8], and extraintestinal manifestations [5–7], when compared to Caucasians. This variability of findings is probably due to the genetic heterogeneity of Hispanics in the United States, which can include European (Spanish and

Portuguese), Caribbean, and Native-American ancestry. Caribbean Hispanics are often categorized as Black (African descent) or White (European) races.

With regard to treatment and outcome disparities amongst Hispanics, the current literature highlights the difficulty of separating ethnic-based differences in disease course with issues of access to care. Several retrospective studies of underserved cohorts in safety-net hospitals have suggested a smaller proportion of Hispanic IBD patients, compared to Caucasians, are prescribed immunomodulator and biologic therapy for their disease [5, 7]. Moreover, Hispanics appear to be less likely to undergo surgery for UC and Crohn’s, based on two studies utilizing the National Inpatient Sample [8, 9]. Nevertheless, patients with Medicaid were also less likely to undergo surgery than patients with private insurance, suggesting a potential contribution from socioeconomic factors.

Given these apparent treatment disparities, one might suspect that Hispanic IBD patients would have poorer outcomes. In particular, surgical outcomes would be expected to underscore ethnic disparities amongst the sickest IBD patients, given surgery is reserved for medically-refractory disease or disease complications (strictures, fistulas, neoplasia). In this month’s *Digestive Diseases and Sciences*, Dr. Yarur and colleagues report on their findings of surgical outcomes amongst Hispanics compared to non-Hispanics [10]. To date, this is the first study evaluating ethnic differences in perioperative complication rates of IBD-related surgery. Importantly, the authors sought to control for access to care issues by comparing Hispanic and non-Hispanic patients within a single safety-net health care system (Miami-Dade County) and including only patients who received regular gastroenterological care for at least 6 months prior to their surgery. Socioeconomic differences were thought less likely,

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as all patients were uninsured and had to meet financial restrictions to receive care within this closed health system. Miami-Dade County has a large population of Hispanics, which is reflected in the current surgical cohort (47 % Hispanic, of which 97 % identified as white Hispanics and 3 % black Hispanics).

The authors were primarily interested in perioperative complications within 30 days of surgery. This included surgical complications (wound dehiscence, anastomotic leak) and medical complications (deep venous thrombosis, pneumonia, urinary tract infection). A total of 142 surgical patients were included in this retrospective analysis, of which 44 % underwent procedures for ulcerative colitis (total proctocolectomy and end ileostomy, total proctocolectomy with ileoanal pouch anastomosis) and 56 % underwent surgeries for Crohn's (ileo-colic resection with primary anastomosis, small bowel resection or intra-abdominal fistula repairs). There was no significant difference between Hispanics or non-Hispanics in regards to disease subtype (UC vs. Crohn's), phenotype (Montréal classification for Crohn's, extent of disease in UC) or type of surgery.

The overall complication rate was 21.8 %, comparable to that reported in other IBD patient series [11]. Hispanics and non-Hispanics had similar rates of medical (26.7 vs. 37.5 %, respectively) and surgical complications (27 vs. 25.3 %). The odds ratio for Hispanics to have any risk of complication was 1.64 (95 % CI 0.49–5.85, $p = 0.43$). Factors which increased the risk of surgery are not surprising—smoking, UC pancolitis subtype, albumin <3 mg/dL, and prednisone use. None of these variables varied significantly based on ethnicity or race. The use of immunosuppressive agents (immunomodulators and anti-TNF agents) was similar amongst Hispanics and non-Hispanics, but patients taking these drugs did not have increased surgical risk.

The authors conclude that Hispanics do not have worse perioperative outcomes when controlling for access to medical access to care. These data and conclusions are important and reassuring as they indicate the importance and impact of access to care on outcomes. Even so, a few caveats underscore some unanswered questions and potential future directions based on this study. First, the Hispanic cases were compared to a non-Hispanic control group, which included whites and African-Americans. Given that African-American IBD patients have been reported in multiple studies to have more severe disease and worse surgical outcomes [5, 8, 9], it is possible that by combining potentially high- and low-risk control groups for complications, differences between Hispanics and whites may have been underestimated.

Furthermore, this study included two important exclusion criteria. Firstly, all patients classified as American

Society of Anesthesiologists (ASA) physical status classification of 3 or greater were excluded from analysis, potentially excluding patients from analysis with comorbidities, such as diabetes and hypertension that disproportionately affect Hispanics and likely affect perioperative risk. Secondly, all patients requiring urgent procedures (occurring <48 h after unplanned hospital admission) were also excluded, presumably to control for potential confounding factors related to medical access. Nevertheless, since all study patients needed to have been followed by a gastroenterologist for at least 6 months before surgery, this exclusion may have precluded analysis of perioperative complications in the highest-risk patients who manifest severe disease at presentation.

Overall, the authors have nicely disentangled the tightly associated factors of ethnicity and access to care that create challenges in ethnicity-based IBD studies. By controlling for access to medical care, the data suggest that the IBD genotype in Hispanics is not associated with worse perioperative outcomes. The key issue of course is access to care. Access to care disproportionately affects certain racial and ethnic groups. As the burden of IBD continues to increase amongst minorities in the United States, studies such as those by Yarur and colleagues are to be encouraged. These studies would continue to clarify the relative importance of genetics and access to care on outcomes, especially during an era in which improved healthcare delivery models are proposed to improve care for all IBD patients.

References

1. Molodecky NA, Soon IS, et al. Increasing incidence and prevalence of the inflammatory bowel diseases with time, based on systematic review. *Gastroenterology*. 2012;142:46–54.
2. Loftus EV. Clinical epidemiology of inflammatory bowel disease: incidence, prevalence, and environmental influences. *Gastroenterology*. 2004;126:1504–1517.
3. Economou M, Pappas G. New global map of Crohn's disease: genetic, environmental, and socioeconomic correlations. *Inflamm Bowel Dis*. 2008;14:709–720.
4. Sewell JL, Yee HF, Inadomi JM. Hospitalizations are increasing among minority patients with Crohn's disease and ulcerative colitis. *Inflamm Bowel Dis*. 2010;16:204–207.
5. Nguyen GC, Torres EA, et al. Inflammatory bowel disease characteristics among African Americans, Hispanics, and non-Hispanic Whites: characterization of a large North American cohort. *Am J Gastroenterol*. 2006;101:1012–1023.
6. Sewell JL, Inadomi JM, Yee HF. Race and inflammatory bowel disease in an urban healthcare system. *Dig Dis Sci*. 2010;55:3479–3487.
7. Damas OM, Jahann DA, et al. Phenotypic manifestations of inflammatory bowel disease differ between hispanics and non-Hispanic whites: results of a large cohort study. *Am J Gastroenterol*. 2013;108:231–239.

8. Nguyen GC, Bayless TM, et al. Race and health insurance are predictors of hospitalized Crohn's disease patients undergoing bowel resection. *Inflamm Bowel Dis*. 2007;13:1408–1416.
9. Nguyen GC, Laveist TA, et al. Racial and geographic variations in colectomy rates among hospitalized ulcerative colitis patients. *Clin Gastroenterol Hepatol*. 2006;4:1507–1513.
10. Yarur AJ, Abreu MT, Salem MS, Deshpande AR, Sussman DA. The impact of Hispanic ethnicity and race on post-surgical complications in patients with inflammatory bowel disease. *Dig Dis Sci*. (Epub ahead of print). doi:[10.1007/s10620-013-2603-3](https://doi.org/10.1007/s10620-013-2603-3).
11. Beddy D, Dozois EJ, Pemberton JH. Perioperative complications in inflammatory bowel disease. *Inflamm Bowel Dis*. 2011;17:1610–1619.