

# ANATOMIC, AGE, AND SEX DISTRIBUTION OF COLORECTAL CANCER IN A NEW YORK CITY HISPANIC POPULATION

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This study was undertaken to examine the regional distribution of colorectal cancer, the age of presentation for different subsite locations of the disease and whether there is any intersex difference in frequency of the disease, in New York City Hispanics. The charts of Hispanic patients on file with the tumor registry at Bellevue Hospital Center in New York City from 1976 to 1995 were reviewed. Demographic and pathologic data including patient age and cancer location were analyzed.

Lesions of the distal colon and rectum accounted for more than 70%, while right-sided lesions were found in 20.7% of patients. The male to female ratio was 47.6% to 52.4%. The overall mean age of patients was 60.4 years. Proximal lesions presented at a later age than distal lesions, 63.2 years for the right colon and 58.5 years for the rectum; this difference in ages was significant.

These results suggest that Hispanic-American patients with colorectal cancer appear to be presenting at an earlier age than the general American population. Further study is needed to determine whether Hispanic women are presenting with a higher frequency of colorectal cancer than their male counterparts and whether Hispanic patients are presenting at an earlier age than the general population with colorectal malignancies and why. (*J Natl Med Assoc.* 1998;90:19-24.)

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**Key words:** colorectal cancer ♦ Hispanics  
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Malignant neoplasms of the colorectum have been studied extensively and are a common potentially fatal gastrointestinal disease encountered in clinical practice. At present, colorectal cancer is the third leading cause of cancer death for all Americans

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and the second leading cause for Hispanic Americans.<sup>1</sup> Colorectal cancer is a disease that can easily be treated with proper screening and management. In an effort to decrease the morbidity and mortality associated with this frequent disease, studies have been performed to gain insight into the anatomic distribution,<sup>2-4</sup> average age of patients presenting with the disease,<sup>5-7</sup> mean age of presentation for the different regions of the colon,<sup>8,9</sup> and intersex differences of the disease.<sup>10-12</sup>

Several investigators have looked at the anatomic distribution of colon cancer in different ethnic groups. Blacks have been found to present with a high occurrence of right-sided lesions,<sup>3,4</sup> Asians have a large proportion of rectal lesions,<sup>2,13,14</sup> and whites have a high occurrence of left-sided lesions.<sup>3</sup> Fleshner et al<sup>8</sup> and

**Table 1. Anatomic Distribution of Colorectal Cancer**

Subsite	No. (%) Cases
Right colon	45 (23.8)
Transverse colon	3 (1.6)
Left colon	71 (37.6)
Rectal cancer	61 (32.3)
Colon cancer with unknown location	9 (4.8)
Total	189 (100.1)

Slater et al<sup>9</sup> have shown that right-sided colorectal cancer is more likely to present at an older age than distal lesions. It has been shown and suggested that the incidence of colorectal cancer is lower in women than in men.<sup>15,16</sup> Other research has looked at the intersex differences in regional distribution of colorectal cancer. It was demonstrated that women have a higher frequency of right-sided lesions,<sup>10-12</sup> while men are at greater risk for rectal cancer.<sup>10,11</sup>

However, little is known about the clinical profile of this disease in Hispanic Americans even though in many urban cities such as Chicago,<sup>17</sup> Los Angeles,<sup>18</sup> Miami,<sup>19</sup> and New York City,<sup>20</sup> Hispanics constitute a large percentage of the population, and they may be the fastest growing segment of the American population at present.

The few studies that have examined colorectal cancer in Hispanics addressed the relative risk, incidence, or mortality of the disease in this group, and compared them with the white non-Hispanic populations of the United States.<sup>21-29</sup> Hispanics consistently were found to have lower mortality and incidence of disease.<sup>21-29</sup> However, none of the research specifically addresses the segmental distribution, patient age at presentation, and intersex differences of colorectal cancer in this group of the American population.

This study was undertaken to analyze the regional distribution of colorectal cancer in a New York City Hispanic population, compare the distribution of the disease among men and women, and analyze the ages at which patients present with cancers in each anatomical location. The results may prove helpful in developing guidelines for the screening and work-up of patients of this ethnic group. In the current environment of managed care, cost plays a significant role in the distribution of health-care resources. Populations of patients whose health-care data are incomplete or underrepresented may be denied access to vital resources.

## MATERIALS AND METHODS

Patients who were on the file of the tumor registry of the Bellevue Hospital Center, a major tertiary medical center in New York City, were identified. The tumor registry abstract and the medical records of 688 patients who presented to Bellevue between 1976 and 1995 were reviewed. Only patients who underwent an invasive procedure (surgery, proctocolonoscopy, or biopsy) and a confirmed pathological diagnosis of adenocarcinoma of the colon or rectum were included in the study. In addition to confirming the diagnosis, the patient's age at diagnosis, ethnicity, and anatomic location of the tumor were recorded. Only patients who were born in Spanish-speaking Latin America, Spain, or identified themselves as being of Hispanic descent and met the above criteria were analyzed further. It should be noted that Hispanic patients may be of any race.

The anatomic location of the tumors were classified as:

- right (extending from the cecum to the hepatic flexure),
- transverse,
- left (from the splenic flexure to the sigmoid colon), or
- rectal.

"Rectosigmoid" cancers were classified as rectal cancers.<sup>13</sup> In patients with metastatic colorectal cancer or in those with indeterminate pathology reports ("not otherwise specified"), attempts were made to identify the location of the cancer from the surgical, proctocolonoscopy report, or diagnostic information in the medical record. If these attempts were unsuccessful, these patients were classified as colon cancer.<sup>30</sup> Cancers of the anal canal and appendix were excluded from the study due to possible histological<sup>31-33</sup> and etiologic differences.<sup>32,34</sup>

Patients were categorized into three different age groups: <45 years, between 45 years and 64 years, and ≥65 years. This stratification was arbitrary and used to simplify the data analysis. Mean ages were compared using an unpaired Student's *t*-test.

## RESULTS

There were 688 patients who had adenocarcinoma of the colorectum. The ethnicity of 3 of these patients could not be identified. Hispanics comprised 27.6% (189/685) of the total population. The breakdown of Hispanic patients with a confirmed pathological diagnosis of colorectal adenocarcinoma during the period studied was 90 men and 99 women.

The overall male-to-female ratio was 47.6% to 52.4%.

Overall left colon and rectal cancers accounted for approximately 70% of all lesions, while the right colon was the site in 23.3% of patients. The transverse colon was infrequently involved (1.6%). In nine patients the location of the cancer could not be identified. The anatomic distribution of colorectal cancer for the entire group is presented in Table 1. When the anatomic subsites were divided by sex, women outnumbered men in each location except colon cancer and rectum (Table 2).

The mean age of the entire group of patients was 60.4 years (60.1 years for men and 60.5 years for women). The difference in ages was not significant ( $P>.05$ ). Patients who were <45 years represented 10.6% (20/189) of the patients, while 52.9% (100/189) were between the ages of 46 and 64 years. Patients >64 years accounted for the remaining 36.5%.

The average age for patients with right colon cancer was 63.2 years; transverse, 61.7 years; left colon, 60 years; rectal cancer, 58.5 years; and colon cancer, 61.2 years. The difference between right lesions and rectal lesions was significant ( $P<.05$ ).

## DISCUSSION

Historically, minorities, especially Hispanics, have been underrepresented in scientific investigation. This study was undertaken to provide some insight into the clinical profile (ie, the anatomic distribution, intersex difference if any, and age of presentation) of colorectal cancer in an urban Hispanic population.

### Anatomic Distribution

As demonstrated previously in other groups, the Hispanic population in this study had more than 50% of colorectal cancer in the distal colon and rectum.<sup>7,15,35</sup> Thus, flexible sigmoidoscopy may prove beneficial in detecting these lesions and thus act as a screening tool in Hispanic patients at high risk for colorectal cancer. The low numbers of transverse lesions is likely secondary to the inclusion of hepatic and splenic flexure lesions with right and left colon cancer, respectively.

### Age of Presentation

Overall, patients in this study were relatively young, with a large percentage (63.5%) of patients being <65 years. In comparison with other reported groups in North America, the Hispanic population in this study was relatively young.<sup>5,7</sup> However, the patients' ages were similar to the average age of the

**Table 2. Breakdown of Colorectal Cancer Location by Gender**

Location	No. (%) Males	No. (%) Females	Total No.
Colon cancer with unknown location	5 (55.6)	4 (44.4)	9
Right colon	17 (37.8)	28 (62.2)	45
Transverse colon	1 (33.3)	2 (66.6)	3
Left colon	33 (46.5)	38 (53.5)	71
Rectal colon	34 (55.7)	27 (44.3)	61
Total	90	99	189

population in a study by De Llano-Rodriguez et al.<sup>36</sup> The latter studied a group in Spain that has historic genetic ties to Hispanic people of the new world. The relatively young age of our patients and the historic ties with Spain's population raises the possibility of genetic predisposition for early presentation of colorectal cancer in New York City Hispanics. We did not compile any family history, which may provide some insight into the role of genetic descent in the development of colorectal cancer in our population of patients.

Comparison of the mean ages of presentation for the different anatomic locations reveals an increase from distal to proximal colon, 58.5 years for rectal cancer and 63.2 years for right-sided cancer, this difference was significant ( $P<.05$ ). Others reported similar results in their populations, ie, patients who had proximal cancers were more likely to be older.<sup>8,37,38</sup> This is likely due to the fact that right-sided cancers have a greater chance of being asymptomatic<sup>39</sup> and are more likely to present with occult bleeding.<sup>39,41</sup> These patients are apt to seek medical attention when they have symptoms consistent with obstruction or perforation.<sup>39,40</sup> Left-sided lesions, on the other hand, have a greater chance of presenting with lower abdominal pain,<sup>39</sup> hematochezia,<sup>41</sup> and changes in bowel habits.<sup>39</sup> Thus, these patients are more apt to recognize a change in their health and seek care earlier. These factors are the presumed reason that patients who have right-sided lesions are more likely to present with more advanced stages and worse prognosis of colorectal cancer than are patients with left-sided disease.<sup>42</sup>

At present, the American Cancer Society screening recommendations for colorectal cancer in an asymptomatic patient is a digital rectal examination beginning at age 40 and an annual fecal occult blood

test starting at age 50 and sigmoidoscopy or colonoscopy every 5 years, or double contrast barium enema every 5 to 10 years.<sup>1</sup> If it takes 2 to 10 years for a malignant process to become clinically detectable,<sup>43,44</sup> and we start screening Hispanic patients every 5 years with sigmoidoscopy starting at age 50, we may miss some cancers in this segment of the American population given the fact that many Hispanics are young at presentation with colorectal cancer. Knowing that colorectal cancer is a treatable disease if detected early, these patients may suffer significant morbidity and mortality as a result of having their disease diagnosed in a later stage.

### Intersex Differences

The present finding that Hispanic women had a higher frequency of colorectal cancer than their male counterparts conflicts with information from other studies.<sup>45,46</sup> We also found that the women presenting to Bellevue Hospital outnumbered the men in right-sided and left-sided colon cancer; men only outnumbered the women in rectal cancer. Having women outnumber men with right-sided lesions is consistent with the findings of others.<sup>10-12,30,47</sup> Some of these same investigators also found that men had a higher frequency of rectal lesions than women.<sup>10,12</sup> Our finding that women presented with a higher frequency of left-sided lesions, Hispanic women accounted for 53.5% of left-sided cancers in our population is consistent with the findings of Devesa and Chow who found that African-American women had more lesions of the left side than men did.<sup>15</sup>

The etiologic factor(s) for the high frequency of colorectal cancer in these women is unclear. The role of hormonal factors is inconclusive at present. Dos Santos and Swerdlow<sup>48</sup> studied patients with colorectal cancers in the United Kingdom and found that women  $\leq 60$  years are at a greater risk for left-sided colorectal cancer. They suggested that this might be due to hormonal factors in premenopausal women. A study of patients in Los Angeles found that women who had more than four pregnancies were at increased risk for colon cancer, especially in the left colon.<sup>45</sup> Further evidence for a hormonal factor and increased incidence of colorectal cancer in women has been provided by Kampman et al<sup>49</sup> who found that late age at menopause was associated with an increased risk of colorectal cancer. However, the hormonal association has been refuted by numerous studies that found that pregnancy and the use of oral contraceptives actually decreased

the risk of colorectal cancer.<sup>50-53</sup>

Other factors that may have an etiological role in colorectal cancer include high alcohol intake,<sup>54</sup> tobacco use,<sup>55</sup> and a diet high in fat and low in fiber.<sup>56,57</sup> However, these factors should increase the risk of colorectal cancer equally for patients of either sex. Unfortunately, we did not record information regarding the presence or absence of these risk factors.

### Study Limitations

This study leaves many questions unanswered. What role if any does a woman's reproductive status and parity have on a patient's likelihood of developing colorectal cancer, and does this make women more likely than men to develop neoplastic diseases of the colon? Why are Hispanics presenting at a younger age than other patients with colorectal cancer? Will these findings apply to Hispanics in Los Angeles, Chicago, Puerto Rico, etc?

### CONCLUSIONS

Despite extensive research on colorectal cancer in the United States, minorities, especially Hispanics, historically have been underrepresented in these studies. In our study of Hispanic patients at a New York City medical center, we found that the regional distribution of colorectal cancer is similar to that of other groups of the United States. However, Hispanic patients appear to be presenting at an earlier age with colorectal cancer than some other groups in the country. Although the reason for this finding is not clear, genetic and environmental factors undoubtedly play a major role. Since the key to successful treatment is early detection and screening, identifying the precise factors involved in cancer development in patients of this age is crucial. Based on our finding that Hispanics are presenting at an early age with colon cancer, the current screening recommendations for this disease may require adjustments for Hispanics.

The age at presentation for the different anatomical regions of the colon is consistent with the finding of others, with distal lesions presenting at later ages than proximal ones. Moreover, the traditional belief that men have a higher frequency of colorectal cancer than women was not found in our study. The Hispanic women in our population had a higher frequency of colorectal cancer than their male counterparts. This was particularly true for right and left sided lesions. Some studies have suggested that hormonal factors may have a role in this; this remains

to be proven conclusively.

The findings of this study may be unique to the Bellevue Hospital Center or may be an accurate reflection of the clinical picture of this disease in the Hispanic segment of the American population. Further study is warranted to develop a profile of this disease entity in Hispanics so that appropriate screening programs can be implemented.

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