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Original Article

Survival Trend in Colorectal Cancer in African American Patients Over the Last Decades

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Abstract

African American (AA) patients with colorectal cancer (CRC) had a lower survival rate than white Caucasians (WC) regardless of the stages of the disease. To follow the trend in survival over the years, we look at data on our CRC survival during 1963-1985 and followed the current published data on CRC survival.

This is a retrospective analysis of patients with colorectal cancer seen in an inner-city teaching hospital serving mostly AA populations between 1963-1985. Data collected and analyzed were age, sex, race, insurance carriers, stage of cancer at presentation to treatment, treatment provided, and survival rate at 5 and 10 years.

There were a total of 803 patients. Of those, 754 (94%) patients were African American with the mean age of the group being 68 years. Females made up 56% of the sample population and with 47% of the patients presented with rectal bleeding and bowel obstruction. Thirty-two percent of these patients were uninsured. Only 634 patients went for surgery with or without chemoradiation therapy. The TNM stages were as follows: stage 1-16%, stage 2=21%, stage 3=30%, and stage 4=32%. Of the 635 patients treated, 96 (15%) patients were lost to follow-up, and the five-year survival rate was 16%, and the 10-year survival rate was 7%. Recent published data showed the five-year survival rate from colon cancer improved slightly among AA diagnosed in early 2000 with CRC but has not reached the level of that of white patients in both male and female (AA male 22.7 and female 14.8 versus white male 15.8 and female 11.3, per 100,000 with p-value less than 0.001).

These findings suggest that disparities in survival between AA patients with colorectal cancer remain high compared to WC, despite the efforts to close the differences by increased screening and improved accessibility to healthcare services. Therefore, we should develop additional strategies to close the gap.

Introduction

Colorectal cancer (CRC) is the second leading cause of male cancer death after lung cancer in every racial and ethnic group [1]. African Americans (AA) are at a disadvantage compared to white Caucasians (WC), regarding incidence and mortality for various health and socioeconomic reasons [1]. Although exact contributing reasons for these disparities are not well defined, nonetheless, these differences could fall into three categories, personal and environmental, as well as socio-economic. Between 1999 and 2020, there were 1,166,158 CRC-related deaths. The age-adjusted mortality rate for all races decreased from 20.7 per 100,000 (1999) to 12.5 (2020) with AA having the highest age-adjusted mortality rate compared to White (21.1 compared to 11.4, per 100,000). The current study was carried out to collect the data pertinent to AA patients with colon cancer who went for treatment at major metropolitan urban hospitals between 1963 and 1985, particularly, the outcome of those treated patients and look at the national published data results on survival of colorectal cancer in the 1980's and 2020. The purpose was to observe if there was any improvement in survival and how the efforts to close the gap were successful.

We carried out a retrospective analysis of consecutive patients with colorectal cancer who were diagnosed and treated at an urban teaching center between 1963 and 1985. Patient records were obtained from patients' charts, outpatient follow-up records, and tumor registry records. These data were collected by the physician to determine the following: age, sex, symptoms at presentation to treatment, stage of the tumor, initial treatment whether surgical, radiation therapy, chemotherapy, or a combination of the above. The type of surgery and mortality were also recorded. A total of 30 variables were collected.

Tumor classification (TNM) was recorded according to the standards set by the American Joint Committee on Cancer Staging.

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Differences between the discrete variables were tested using chi-square, and continuous variables using a two-tailed student's t--test to ascertain the • significance of differences. A p-value of 0.05 or less was considered significant. This study was approved by the Department of Surgery and hospital administration in 1985.

There were 803 patients in the cohort, 754 (94%) were AA with a mean age of 68 years. Females constitute 56% and males 44%. Locations of cancer are in Table 1. Only 634 patients went for surgery with or without radiation/chemotherapy, with 73% having chemical and mechanical bowel preparation. Abdominal pain, intestinal obstruction, and rectal bleeding are by far the most common presentation (68%), and half of them have their symptoms for more than a month before presenting to treat. Only 67% carried medical health insurance. TNM stages, five and ten years survival rates are in Table 1.

There has been a noticeable reduction in the incidence of CRC in the last decades, reducing it by 30% in males and 20% in females [2], and at the same time, increasing incidence in young adults < 50 years old [3]. As there is a decline in the annual incidence of CRC, 3-4% and (during the 2000s) and 1% during 2011-2019, this was driven by an increasing incidence of the CRC in 50 years and younger (11% increase in 1995 to 20% in 2019) [4]. The AA population scored less favorably than WC in reducing incidence (male and female) (WC (male) 43.9, AA (male) 52.6; WC (female) 33.9, AA (female) 39.1 per 100,000) [5]. Furthermore, between 2015 and 2019, the mortality rate per 100,000 was worse for AA (male and female) than WC. WC (male) 15.8, AA (male) 22.7 $p < 0.001$; WC (female) 11.3, AA (female) 14.8 $p < 0.001$ [5].

More than half ofour patients were seen in stages III and IV of CRC and this undoubtedly contributes to a high postoperative

Table 1: *Location of the Colo-rectal Cancer (n=803), Surgical Procedure, TNM Stages, and Follow-up*

			(n)	percent
Anatomical Location of the CRC (n = 803)	Cecum		177	22
	Ascending colon			
	Hepatic flexure		118	15
	Transverse colon			
	Splenic flexure			
	Descending colon		54	7
	Sigmoid		182	23
	Recto-sigmoid		65	8
	Rectal		174	22
	Unspecified		33	4
Surgery Treatment Received (n= 634)	Local excision		19	3
	Right hemicolectomy		155	24
	Left hemicolectomy		97	15
	Transverse colectomy		30	5
	Anterior sigmoid resection		150	24
	Abdominoperineal resection		101	16
	Colostomy without resection		82	13
Stages (TNM) (n =685)	Stage 1 =T1, N0, M0, T2, N0, M0		113	16
	Stage 2 =T3, T4, N0, M0		146	21
	Stage 3=any T, N1, M0		204	30
	Stage 4-any T, any N, M1		222	32
	Five Years Follow-up		**10 years Follow-Up**	
Follow-Up Status	(n =634)	percent	(n =634)	percent
Survival	104	15	42	7
Post-operative death	96	50		
Dead	322	18		
Lost to follow-up	112			

Colorectal cancer ranks among the third most common cancers in the US, after lung and prostate cancer in males and lung and breast cancer in females.

mortality and low 5-year survival rate and emphasizes the need to improve surveillance and patient education as well as accessibility to early medical care. The high postoperative hospital mortality during the 60s and 70s is noticeable, in this report (18%), which improved in recent years, currently at around 3% [6].

In our cohort, loss to follow-up was a serious problem, and what was proposed by one of the authors (HF) in the early 90s was to establish a healthcare navigator who guides and follows up with the patient, throughout his illness. Patient education and physician attitude to gain the trust and confidence of the patient in their management are paramount. With all of the above recommendations, socioeconomic factors remain a priority, such as unemployment, availability of nutritional diet, and cultural and personal habits. These factors need to be addressed collectively to close the gap and gain meaningful outcomes.

This is a retrospective study with a high loss to follow-up and didn't capture patients who subsequently went to different institutes furthermore a higher postoperative mortality influenced the overall survival rate.

While CRC incidence in patients over 50 years old decreases over the years for WC, it remains flat for adult AA patients, with increasing incidence in younger age groups. While mortality of AA remains higher than that of WC (male and female), the efforts to close this gap must address the factors that influence early detection, equal therapeutic opportunities, as well as socioeconomic disparities separately and collectively to achieve a better result.

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