COLORECTAL CANCER IN PATIENTS UNDER AGE 50: TRENDS IN STAGING AND MORTALITY AT A SINGLE INSTITUTION

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Introduction

Colorectal cancer (CRC) is the third most commonly diagnosed cancer in the United States with approximately 4.2% of the population being diagnosed with CRC during their lifetime(1,3,13). Since the implementation of screening colonoscopies, the rate of CRC in patients over 50 has steadily declined over the past several years (12,13). Specifically, the incidence of CRC has decreased by 2.6% each year during the last 10 years with a 2.4% decline in the mortality rate each year (13). This likely corresponds to the early removal of benign polyps prior to malignant transformation. Despite this steady decline in incidence and mortality in patients over 50, estimates of new CRC diagnoses and mortality for 2018 remain staggering with upwards of 140,250 patients diagnosed and over 50,000 death(13).

Guidelines prior to 2018 recommended screening colonoscopies to begin at age 50 in patients without a family history of CRC(3). While there was decreased incidence and mortality as illustrated above, a new patient population was increasing in numbers, those under the age of 50. For this reason, The American Cancer Society recently changed their recommendation to begin screening colonoscopies at age 45 in patients without a family history.

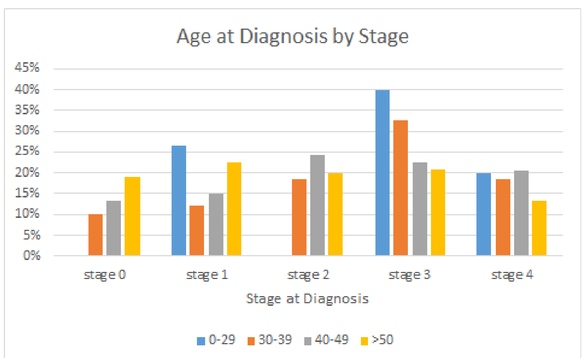
The National Institute of Health Surveillance, Epidemiology and End Results Program has shown an increase in CRC in patients under age 50 by 1.7% annually from 1992 to 2013 and an increase of 5.1% per year from 2013 to 2015(13). There is limited data and studies about this patient population, their staging and mortality. Meyers *et al.* showed 53% of patients under age 50 were diagnosed with stage 3 or 4 CRC compared to 41% of CRC patients over age 50 with stage 3 or 4(9). Li *et al.* recently demonstrated no significant difference in 5-year survival rates between patients above and below age 40 (7). This study is aimed to review all patients diagnosed with CRC at a single institution from 1997 to 2017 with a focus on comparing incidence, stage at diagnosis and mortality in patients over and under age 50.

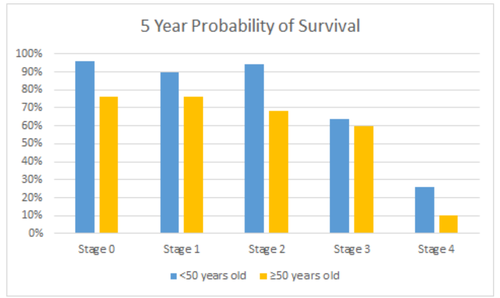
Methods

This is a retrospective review using electronic medical records from the McGlinn Cancer Institute between 1997 and 2017. Inclusion criteria involved patients older than age 18, a biopsy proven diagnosis of CRC and no known genetic predisposition to CRC. The data was then aggregated by age, gender, tumor location, stage and mortality over the past 20 years. Chi square and logtest analysis was used to determine significant trends between these metrics.

Results

From 1997 to 2017, 3188 patients were diagnosed with CRC, 245 patients (7.7%) below age 50 and 2943 (92.3%) above age 50. There was no significant change in incidence over 20 years for patients above or below age 50. CRC patients under age 50 were diagnosed at a higher stage when compared to patients above age 50 (P = 0.0002). Specifically, 71% of patients under age 50 were diagnosed at stage 2 or higher, whereas the stage at diagnosis for patients above age 50 was more evenly distributed with only 57% being diagnosed at stage 2 or higher. Despite the higher stage at diagnosis, younger patients were found to have a lower mortality rate but only statistically significant at stages 2 and 4. Patients under age 50 diagnosed with stage 2 or stage 4 CRC had a significantly higher 5 year survival when compared with patients over age 50 diagnosed at the same stage ($p<0.05$). No statistically significant difference was identified when evaluating gender or location of tumor between these two age groups.





Discussion

For patients below age 50, there is no change in incidence of CRC. Those diagnosed with CRC under age 50 were more likely to be diagnosed at a higher stage of CRC compared to patients diagnosed above age 50. Despite being diagnosed at high stages of CRC, those diagnosed specifically at stage 2 or 4 were found to have greater 5 year survival compared to patients above age 50.

Based on our data, initiating screening colonoscopies at age 45 may downgrade the stage at diagnosis however, its effect on survival has yet to be determined. Further evaluation including risk factors for CRC at younger ages, effect of beginning screening colonoscopies at age 45 and differences in management between these groups are required.

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