Background: Substantial disparities in colorectal cancer (CRC) survival among racial-ethnic groups, especially between Blacks and Whites, have been extensively documented in the Northeast, California and South of the United States. The purpose of this study was to ascertain the determinants of colorectal cancer survival disparities in a state of the Mountain West region, Nevada.

Methods: The study population consisted of a cohort of 12,181 men and women with a first primary invasive carcinoma in the colon and rectum diagnosed between 1995 and 2007, identified through the Nevada Central Cancer Registry and followed for vital status until 31 December 2007. Likelihood ratio chi-square statistics were used to compare the sociodemographic and clinical characteristics for race-ethnicity. Cox proportional regression modeling and partial likelihood tests were used to estimate the hazard ratios and assess interaction effects in CRC cause-specific death.

Results: Blacks and Hispanics were more likely to be diagnosed with distant stage disease, 22.4% and 21.5% respectively, compared to 17.9% in Whites. No difference was observed between racial-ethnic groups for diagnoses in regional stage. Univariate analysis yielded a 20.1% higher risk of CRC death for Blacks compared to Whites [95% CI =1.05–1.37]. Adjustment for tumor stage, sex, age, diagnosis period, tumor sublocation, marital status, and economic status in the multivariate model showed a persistently increased risk of CRC death for Blacks (HR =1.17, 95% CI =1.02–1.33) in relation to Whites.

Conclusions and Implications: Survival disparities persisted among Blacks in our study even after adjusting for common demographic and tumor factors. Further determinants of survival disparities between race/ethnicities, such as course of treatment, should be investigated. Additionally, more public health intervention programs should tailor CRC screening awareness towards minorities as well as ensuring equal access to health care and quality treatment. (Ethn Dis. 2013;23[1]:103–109)

Key Words: Colorectal Cancer, Survival Analysis, Cox Proportional Hazard Regression, Racial/Ethnic Disparities

INTRODUCTION

Colorectal carcinoma (CRC) is the third most commonly diagnosed and second deadliest cancer in the United States.1–2 For the year 2011, it is estimated that 141,210 new cases in the United States were diagnosed and that 49,380 people died of CRC.2

An overall decline in mortality from CRC has been reported since the 1990s for both, men and women.2,3–5 This is likely due to increasing use of screening procedures such as the fecal occult blood test and/or endoscopy with increased detection and removal of precancerous polyps, which may reduce the risk of CRC mortality by up to 50%.6 However, screening procedures are routinely used by only 50% of Americans aged ≥50 years.7 The declining trend in CRC mortality rates is not the same between racial-ethnic groups.1 Both female and male Blacks have higher age-adjusted mortality rates of CRC compared to Whites for cases diagnosed in 2004–2008.8 Also, CRC survival disparities have continued to widen between the different racial-ethnic groups.9 Compared to Whites, Blacks have been shown to have lower overall 5-year CRC survival rates, and the differences are largely attributable to the stage of disease at diagnosis.10–13

Overall, a 90% 5-year CRC relative survival rate is observed when the cancer is detected at an early localized stage. However, in the United States between 1999 and 2006 only 39% of CRCs were detected at this stage.2 Furthermore, Blacks and Hispanics are less likely to be diagnosed with CRC at an early stage. Asians, Pacific Islanders and Whites, are generally the most likely racial groups to survive 5-years after a CRC diagnosis.2,11

To our knowledge, the reasons for CRC survival disparities among racial-ethnic groups (particularly Blacks vs Whites) have not been studied in the Mountain West region states: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico and Utah. Between 2000 and 2010 the Mountain West region has experienced the largest population growth of any large region in the United States, 9.7%.14 Increasingly minority populations are moving to this region with 45% of Nevadans, for instance, classified as non-White.14 For Blacks, this is particularly interesting, since the immigration into the Mountain West region coincides with the least differential of per capita income in relation to Whites of any region in the United States.14

Little is known about racial-ethnic CRC survival disparities in the Mountain West region. As many population groups across the United States and around the world suffer disproportionately from CRC and its after effects, overcoming CRC health disparities is of utmost significance. Using a cohort of patients who had been diagnosed with invasive CRC from 1995 through 2007 and registered in the Nevada Central Cancer Registry (NCCR), the purpose