ETHNIC DISPARITIES IN EARLY ONSET COLORECTAL CANCER IN HAWAI'I

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Introduction:

Colorectal cancer remains the second most common cause of cancer death in the United States. Database studies of colon cancer registries have demonstrated a decreasing incidence of colorectal cancer (CRC) in those over the age of fifty with the institution of screening colonoscopies. For those under the age of 50, however, an opposite trend was observed with ~ 1.5% per year increasing CRC incidence. These earlier onset CRC's are also at later stages and with more aggressive histology1 at presentation. Known risk factors include male gender, Asian, Hispanic or Black ethnicity, smoking history, and body mass index1-3. Our review aims to determine if an increasing incidence of earlier onset CRC is also being observed in Hawaii. Our group is also particularly focused on exploring possible associations and identification of possible increased risk in our Native Hawaiian and Pacific Islander (NHPI) populations, who, as with other Native populations, already experience disparities in health status compared to the general population.

Methods:

De-identified, non-linkable data extracted from gGastro Electronic Health Record® system from three ambulatory endoscopy centers in Hawaii were reviewed. This dataset represented more than 75% of elective colonoscopies performed statewide during the review period. Data collected between the years 2017 - 2019, included: age, sex, race/ethnicity, BMI, family history of adenoma or adenocarcinoma, type and number polyps. Those with a high-risk genetic family cancer syndrome, Lynch syndrome, and Inflammatory Bowel Disease were excluded. Chi squared test was used to determine significance between categorical variables. Significance was assigned to a p-value < 0.05. We also looked at the subset of those that were found to have adenocarcinoma and examined their demographics according to age.

Table 1. Patient Demographics

	Number of individuals		
	Age < 50	Age > 50	Total
Gender			
Male	920 (47%)	8,342 (49%)	9,262 (49%)
Female	1,040 (53%)	9,616 (51%)	9,616 (51%)
Ethnicity			
NHPI	261 (13%)	1,249 (7.4%)	1,510 (8.0%)
Non-NHPI	1,699 (87%)	15,669 (93%)	17,368 (92%)
BMI			
BMI < 30	1,369 (71%)	12,780 (77%)	14,149 (76%)
BMI 30-35	372 (19%)	2,816 (17%)	3,188 (17%)
BMI > 35	192 (9.9%)	1,033 (6.2%)	1,225 (6.6%)
Neoplasm Risk			
Average Risk	1,011 (52%)	9,083 (54%)	10,094 (53%)
High Risk	496 (25%)	6,859 (41%)	7,355 (39%)
N/A	453 (23%)	976 (5.8%)	1,429 (7.6%)
Total	**1,960 (10%)**	**16,918 (90%)**	**18,878**

Table 2 Subset of Individuals with Adenocarcinoma

	Number of individuals		
	Age < 50	Age > 50	Adenocarcinomas identified, n=109
Gender			
Male	2	54	56
Female	4	49	53
Ethnicity			
NHPI	2	10	12
Non-NHPI	4	93	97
BMI			
BMI < 30	5	83	88
BMI 30-35	0	15	15
BMI > 35	1	3	4
Neoplasm Risk			
Average Risk	3	65	68
High Risk	2	27	29
N/A	1	11	12
Total	**6**	**103**	**109**

Results:

Between 2017 and 2020, 18,878 colonoscopies were completed. Ten percent of these procedures were performed in individuals < 50 of age, with 77.5% of colonoscopies in these younger patients being performed for diagnostic purposes. NHPI patients < 50, underwent diagnostic colonoscopies more often than other groups < 50: 13% vs 7.4%. (Table 1) ($p < 0.001$)

Adenocarcinoma was found in 103 (1.1%) colonoscopies performed in those > 50, compared to 6 (0.5%) of colonoscopies performed in those < 50. Native Hawaiians were diagnosed with adenocarcinoma more often, compared to other ethnicities (33% vs 9.7%) (Table 2).

Discussion:

In an effort to curb this trend of earlier CRC diagnosis, the United States Preventative Services Task Force and American Cancer Society recommend CRC screening for average risk individuals beginning at age 45. Beyond observing this same trend in our population, individuals of Native Hawaiian ancestry appear to be at even higher risk, compared to other groups. Our review identified that NHPI individuals undergo colonoscopies earlier, have more polyps, and are more often diagnosed with CRC.

The main limitation of this study is the small sample size in particular of NHPI ethnicitiy. Furthermore, there may be a selection bias against those who present in an inpatient setting who are more likely to be symptomatic and possibly have higher incidence of CRC and may also present at a later stage.

Conclusion:

NHPI patients younger than age 50 were more likely to undergo diagnostic colonoscopy, develop adenomatous polyps, and be diagnosed with adenocarcinoma. These findings support the benefit for earlier CRC screening, particularly for this at risk population. Further investigation into other determinants and associated risks would be beneficial.

References:

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