Racial Variation In Molecular Profile Of Advanced Gastrointestinal Cancers

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INTRODUCTION

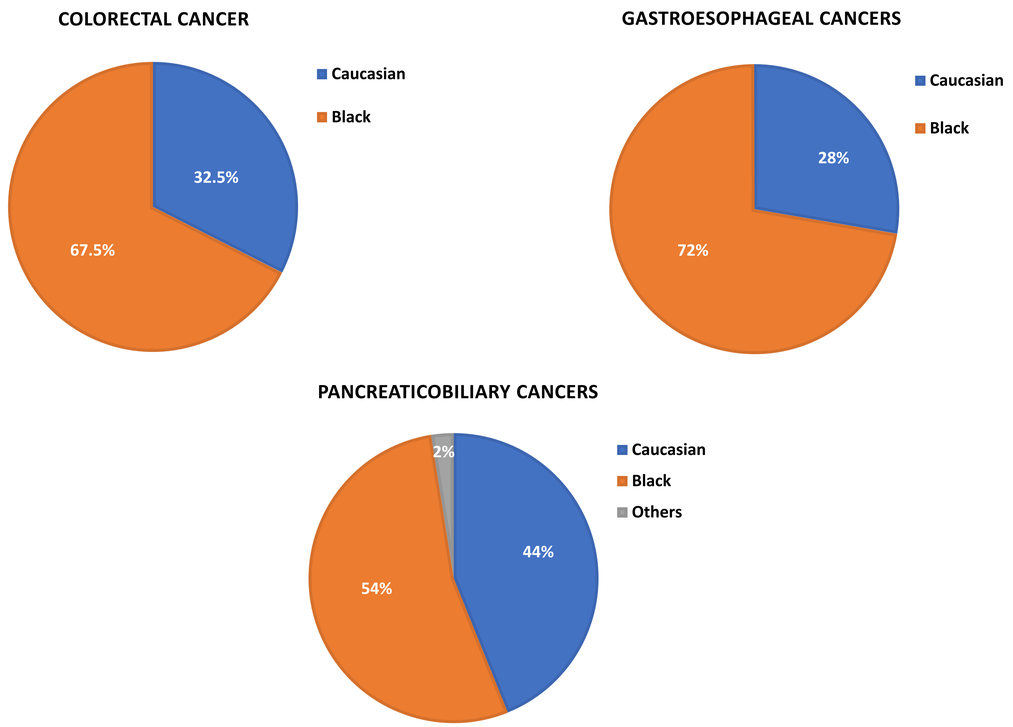
Heterogeneity in the tumor molecular profile based on race is poorly understood. We sought to review the utilization of Next Generation Sequencing (NGS) in patients with advanced gastrointestinal (GI) malignancies treated at an academic medical center and analyze inter racial variations in the tumor molecular profile.

MATERIALS & METHODS

- We conducted a retrospective review of patients with advanced GI malignancies that underwent NGS between 2015 to 2018 at East Carolina University.
- 104 patients met eligibility criteria, but 8 patients were excluded due to insufficient tissue sampling.
- Patients with colorectal, gastric, pancreatic, biliary, small intestinal and esophageal cancers were included.
- Targeted NGS using CARIS Life Sciences platform was performed to obtain molecular analysis.
- We conducted descriptive univariate analysis, cox regression and Kaplan Meier survival curve analysis.

RESULTS

- Median age at diagnosis was 64yrs and 64% of patients were African American.
- The study cohort had 41% (39) colon cancer, 18% (17) gastric cancer, 30% (29) pancreatic cancer, 6% (6) biliary cancer, 4% (4) small intestinal cancer and 1%(1) esophageal cancer patients.
- 60% (55) had de novo Stage IV disease.
- Median overall survival (OS) was 25 months (mos), 30 mos in African Americans and 32 mos in Caucasians (p value =0.46).
- Microsatellite stability (MSS) was seen in 94% (87) and instability in 3% (3). Overall cohort had mutations (mut) in KRAS (50%), TP53 (64%), BRAF (4%), and ERBB amplification (3%).
- On the cox regression model APC mutation was associated with worse outcome. African American patients have more alterations in KRAS, TP53 (not significant), and APC (p=0.02).



	Caucasian n (%)	African American n (%)
	33	61
Age Median Mean (SD)	 63 61.67(SD 11.7)	 68 64.06(SD 12.1)
Male:Female	1.35:1	1:1.25
Insurance: Private Medicare/Medicaid Uninsured	 14(42) 18(54) 1(3)	 22(36) 37(60) 2(3)
Mutational profile(mut): KRAS BRAF APC TP53 ATM PIK3CA SMAD4	 14(42) 3(9) 8(24) 17(52) 5(15) 3(9) 4(12)	 33(54) 1(2) 26(43) 43(70) 8(13) 7(11) 4(7)
Tumor Mutation Burden: High Intermediate Low	 1(3) 18(55) 8(24)	 1(2) 43(70) 13(21)

CONCLUSION

In our analysis we observed inter racial variations in molecular profile of advanced GI malignancies. African American patients had increased rates of APC, KRAS and TP 53 mut. Further studies are required to analyze the impact of these molecular variations on outcomes.