Differential Covariate and Stage Relationships in GI Cancers

INTRODUCTION

Gastrointestinal (GI) cancers constitute a diverse group of malignancies. Effective prevention and early detection require an understanding of these cancers' epidemiologic characteristics. This study investigated whether associations between various clinicopathologic variables and stage of tumor presentation differed across different types of GI cancers.

METHODS

Diagnosed cases of GI cancer with demographic and staging information from 2000-2020 was sourced from Louisiana Tumor Registry. Interactions between each GI cancer site and observed demographic-stage relationship for covariates age, diagnosis year, sex, insurance type, location, poverty, race, ethnicity, and smoking were tested using a multivariable linear regression model and deviance-based tests. Differences in relationships were discussed after adjustment.

RESULTS

Of included patients, average stage in all GI cancers was higher in black and male patients. Age-stage relationships varied by site, with no association found in pancreatic and liver cancers and a negative association seen in remaining sites. Year-stage relationships were found to have more negative slopes in stomach and liver cancer than pancreatic, esophageal, and stomach cancers. Smoking's effect on stage differed by site. Rectal cancers had the biggest smoking-related change (.26 adjusted difference in stage), while pancreatic and esophageal cancer (both differences under .07) had the smallest.

CONCLUSION

Age was associated with advanced-stage diagnosis of rectal, stomach, and esophageal cancer. Improved screening and diagnostics allowed for earlier stage diagnosis of stomach and liver cancer; pancreatic cancer screening remains stagnant. Smoking presents a more critical risk factor for the development of advanced-stage colorectal cancer when compared with pancreatic and esophageal cancer. These findings indicate a need for improved identification of at-risk populations and improved access to care to allow for early identification.