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Interaction Between Race and Insurance Coverage for Gastroenteropancreatic Neuroendocrine Tumor Outcomes

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BACKGROUND

While the incidence of common solid tumors has decreased over the last few decades, that of Gastroenteropancreatic Neuroendocrine tumors (GEP-NETs) has steadily risen. Disparities in access and outcomes from GEP-NETs are described for minorities and those with low socioeconomic status. Health insurance is the primary gateway to healthcare access in the United States, and significantly affects patient outcomes. We aim to study the differential impact of the lack of health insurance by race on survival of patients with GEP-NETs.

METHODS

Using the US Neuroendocrine Tumor Study Group (USNETSG) database of patients with surgically resected neuroendocrine tumors, we performed a retrospective cohort study of adult patients recently diagnosed with GEP-NETs (2005-2016). Health insurance categories consisted of Uninsured/Unknown (UI), Government Insurance (GI), and Private Insurance (PI) patients. We performed univariate and multivariate Cox proportional hazard (Cox PH) analyses to evaluate the impact of health insurance on progression-free (PFS), recurrence-free (RFS) and overall survival (OS), adjusting for patient and tumor-specific characteristics. We also performed a stratified multivariate analysis by Black and White race.

RESULTS

We identified 1605 patients for our analysis. Mean age was 57.2 (SD 13.48). 225 patients (14%) identified as Black and 1,283 (80%) identified as White. Predominant tumor location was the foregut (83%; Whites 67% vs Blacks 44%) and midgut (17%; Blacks 37% vs Whites 26%). Black had higher incidences of hypertension (67% vs 48%) and diabetes (28% vs 19%); ($p<0.001$)979 patients (63%) were PIP, 556 GIP (29%), and 70 UIP (8.6%). Univariate CoxPH for overall survival (OS) showed that compared to PIP, UIP [HR =2.99 (1.97, 4.53, $P<0.001$)] and GIP had worse OS [HR=1.53 (1.18, 1.99), $P=0.001$]. Multivariate CoxPH analysis results showed UIP had a worse OS: [HR=2.52 (1.03, 6.20), $p=0.044$]; while GIP OS was

not significantly different from PIP: [HR=0.80 (0.49, 1.31), p=0.37]. When stratified by race, White UIP patients had worse OS than White PIP [HR=3.16 (1.44, 6.92), p<0.01] but Black UIP patients were not significantly different in survival from Black PIP [HR=6.12 (0.62, 60.96) p=0.12]. There were no significant differences in PFS or RFS by insurance status.

CONCLUSIONS

Health insurance is an important predictor of overall survival of GEP NETs. While there was no demonstrable difference in GEP-NET OS when stratifying for race, uninsured patients demonstrated worse overall survival compared to patients with government or private insurance.

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