

March 2020

Effect of Socioeconomic Status and Comorbidities on Thyroid Cancer Survival Outcomes

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Recommended Citation

Quan, Daniel; Plawecki, Andrea MD; Iwata, Ayaka MD; Van Harn, Meredith MS; Williams, Amy PhD; and Chang, Steven MD, "Effect of Socioeconomic Status and Comorbidities on Thyroid Cancer Survival Outcomes" (2020). *Medical Student Research Symposium*. 45.

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Effect of Socioeconomic Status and Comorbidities on Thyroid Cancer Survival Outcomes

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Purpose/Objectives: Thyroid cancer ranks among the most common head and neck malignancies and makes up 3% of new cancer cases per year, having increased in overall incidence in the last several decades. This study investigates patient characteristics, socioeconomic status (SES), and medical comorbidities as independent predictors of survival in patients with thyroid cancer, treated at a tertiary care hospital with a diverse, primarily low SES patient population.

Materials/Methods: The Henry Ford Health System's Virtual Data Warehouse Tumor Registry was used to identify patients with thyroid cancers from 1997 to 2016. Socioeconomic data was obtained from 2010 US Census. Comorbidities were quantified using the Charlson Comorbidity Index (CCI). Statistical analysis was performed using Kaplan-Meier estimator and Cox proportional hazards models.

Results: There were 1042 patients with thyroid cancer. 5- and 10-year survival probabilities decreased with age ≥ 60 years ($p < 0.001$), stage 3/4 ($p < 0.001$), clinical N stage 1-3 ($p < 0.001$), black race ($p = 0.001$), $CCI > 1$ ($p < 0.001$), and lowest quartile median household income ($p < 0.001$). In multivariate analysis, age (1-year increase HR: 1.97, 95% CI: 1.06-1.09), sex (female vs. male HR: 0.67, 95% CI: 0.48-0.95), and CCI (1-point increase HR: 1.26, 95% CI: 1.19-1.34) were significantly associated with survival outcomes. A CCI cutoff of > 1 was a reliable predictor of mortality (AUC: 0.759, 95% CI: 0.716-0.801). CCI was significantly correlated with stage ($r = 0.166$, $p = 0.004$) and median household income ($r = -0.175$, $p < 0.001$).

Conclusion: Increased age, male sex, and medical comorbidities predicted significantly worse survival in thyroid cancer. Race and median household income were not independent significant prognostic indicators.