“Evaluating Social Vulnerability Impact on Care & Prognosis of Head & Neck-Nervous System Cancers in the US”

Introduction

In the current literature, the association between social determinants of health (SDH) and head & neck-nervous system cancer (HNNsC) is limited by the narrow scope of SDH assessed and the broad classifications of HNNsC. Our study utilizes the CDC-Social Vulnerability Index (SVI) to assess both the individual and collective impact of four social determinant themes on various HNNsC in US adults.

Methods

This retrospective cohort study utilized the SEER database to evaluate 116,373 adult patients from 1975-2017 who presented with various types of HNNsC. Patients were assigned SVI scores based on county-of-residence at the time of diagnosis, encompassing total SVI score and 4 sub-scores of socioeconomic status, minority-language status, household composition, and housing-transportation. Using these scores, univariate linear regressions were used to assess patient care (months of follow-up) and prognosis (months of survival).

Results

As the total SVI score/overall social vulnerability increased, a significant decrease in months of follow-up was observed for many HNNsC tumors (p< 0.001), ranging from 3.55-36.6% decreases in mean lengths of follow-up when comparing the lowest to highest vulnerability cohorts. Similarly, a decrease in months of survival was observed (p< 0.001), ranging from 6.90-45.81% decreases in the mean survival period when comparing the lowest to highest vulnerability cohorts. Increases in vulnerability within SVI sub-scores/SDH themes contributed significantly to these total-SVI trends in months of follow-up and survival, with each social determinant impacting different disease classes to varying extents.

Conclusions

The results of this study show that with increasing social vulnerability, there is a significant decrease in both the care (follow-up) and the prognosis (survival) of US adults with HNNsC and highlight which particular SDH contributes more to disparities.