Sociodemographic Disparities in Oropharyngeal Cancer Among Floridians

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Introduction

Objective

- To analyze how epidemiological factors among Floridians contribute to distant stage oropharyngeal cancer (OPC)

Background

- OPC includes cancer of the:
  - Base of tongue
  - Palatine tonsils
  - Soft palate[1]
- In 2020, there were 98,412 new OPC cases worldwide and 48,143 deaths[2]
- 60-70% of OPC cases are HPV-related[3]
- Tobacco and alcohol usage are OPC risk factors[4]
- Distant stage OPC is more common among those who are Black[5], male[5], uninsured or hold public insurance[6], and reside in rural areas[7]
- There is a need for enhanced early-stage OPC screening

Materials and Methods

Patients and Design

- Database study utilizing the Florida Cancer Data System (FCDS), a statewide cancer registry
- OPC cases diagnosed from 2010 to 2017
- Cases were excluded (N = 5,064) if they were diagnosed by autopsy or were not defined as squamous cell carcinoma
- Cases with missing data about SEER stage, ethnicity, marital status, insurance status, or gender were also excluded

Outcomes and Measures

- SEER stages were utilized to define disease stage:
  - "in situ" or "local" (SEER stage I) defined as local
  - "regional" (SEER stage II) defined as regional
  - "distant" (SEER stage III) or "systemic spread" (SEER stage IV) defined as distant[8]

Analysis

- Sociodemographic factors among Black and white OPC patients were compared with chi-square analysis
- Multivariable logistic regression analysis determined risk factors associated with distant stage diagnosis
- Geographical mapping of census tracts via R programming

Results

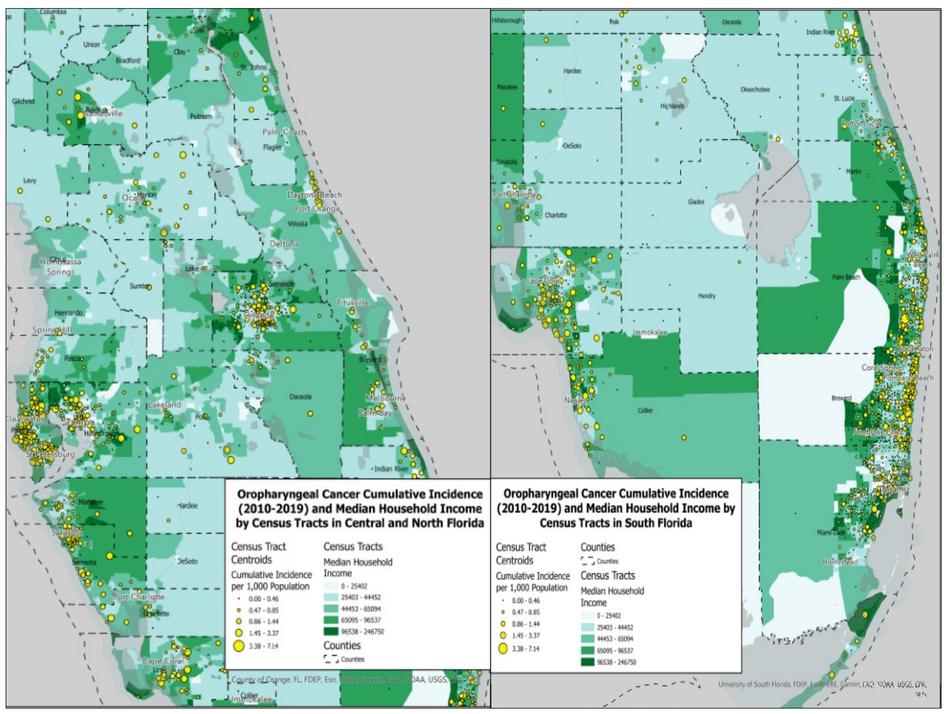
- 9,058 OPC cases, 7,700 (85.0%) were white non-Hispanic, 833 (9.2%) were white Hispanic, and 525 (5.8%) were Black
- OPC patients were predominantly male (n=7,485, 82.6%) and urban residents (n=6,466, 71.4%)
- 6,345 OPC patients were regional stage (70.0%), 1,157 were local stage (12.8%) and 1,556 were distant stage (17.2%)

Univariate (UVA) and Multivariate (MVA) Multinomial Logistic Regression Analysis for Likelihood of Distant Stage at Time of Diagnosis Distant vs. Local as the reference group (N= 9058)

	C. UVA Distant vs. Early				D. MVA Distant vs. Early			
	OR	95% CI		*P-value*	OR	95% CI		*P-value*
Age, in years								
<60	1	Ref			1	Ref		
≥60	0.612	0.522	0.719	**<.001**	0.636	0.531	0.763	**<.001**
Race/Ethnicity								
White Non-Hispanic	1	Ref			1	Ref		
White Hispanic	0.876	0.67	1.144	0.331	0.849	0.647	1.113	0.235
Black	2.088	1.512	2.885	**<.001**	1.84	1.323	2.559	**<.001**
Sex								
Male	1	Ref			1	Ref		
Female	0.515	0.425	0.624	**<.001**	0.472	0.387	0.575	**<.001**
Marital status								
Married	1	Ref			1	Ref		
Single/unmarried	1.259	1.033	1.536	**.023**	1.295	1.063	1.58	**0.01**
Separated/Divorced/Widowed	1.587	1.314	1.917	**<.001**	1.312	1.065	1.615	**0.011**
Insurance Status								
Private Insurance	1	Ref			1	Ref		
Public Insurance	1.046	0.889	1.231	0.586	1.18	0.984	1.414	0.075
Uninsured	2.299	1.575	3.356	**<.001**	1.884	1.279	2.775	**0.001**
Cigarette smoking status								
Never smoker	1	Ref			1	Ref		
Current Smoker	1.719	1.375	2.149	**<.001**	1.487	1.182	1.872	**<.001**
Former Smoker	0.962	0.815	1.215	0.962	1.03	0.841	1.261	0.775
Unknown	1.082	0.851	1.375	0.521	1.069	0.839	1.362	0.589
Geographic Region								
Urban	1	Ref			1	Ref		
Rural	1.215	1.026	1.439	**0.024**	1.14	0.96	1.353	0.135

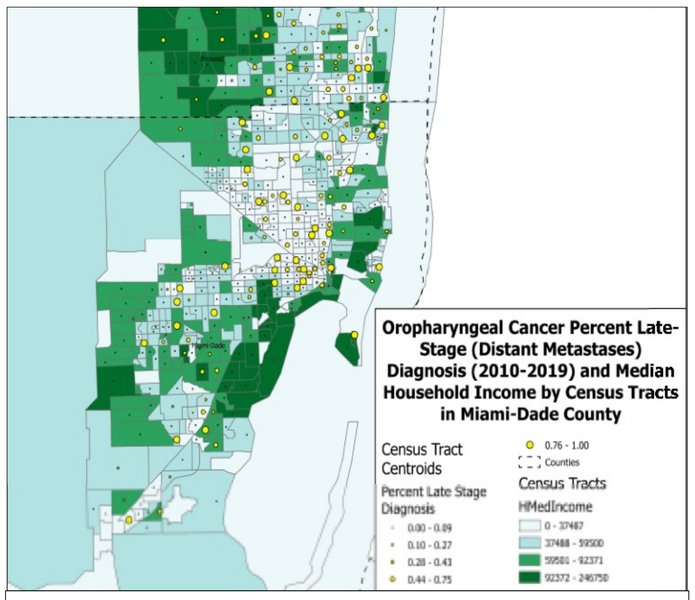
Geographical Mapping

Oropharyngeal Cancer Cumulative Incidence (2010-2019) and Median Household Income by Census Tract. Central and North Florida (left), South Florida (right).



Geographical Mapping Cont.

Oropharyngeal Cancer Percent Distant Stage Diagnosis (2010-2019) and Median Household Income by Census Tract in Miami-Dade County



- Higher cumulative incidences in large metropolitan areas including Miami, Tampa, and Orlando
- Urban areas show higher percent of patients with distant stage diagnosis than rural regions
- In Miami-Dade County, lower income tracts have higher percent of distant stage OPC diagnosis

Discussion

- Distant stage OPC at diagnosis is more common than local stage OPC among patients who are:
  - Younger than 60-years-old
  - Black
  - Male
  - Unmarried
  - Current smokers
  - Uninsured
- Younger patients are more likely to present distant stage, possibly due to increased HPV-related disease
- Current smoking status, not former status, increased the odds of distant stage disease
- Past studies demonstrate increased distant stage OPC among rural residents[7]
- Future studies should further investigate how these trends are affected by HPV status

Conclusions

- OPC patients with distant stage disease experience many independent sociodemographic risk factors
- These risk factors complicate early detection of OPC
- Geographical mapping analysis can help direct OPC screening initiatives to at-risk communities

Contact

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