Background

- Oropharyngeal cancer has dramatically increased in incidence over the last 3 decades, recently surpassing cervical cancer as the leading human papillomavirus (HPV)-associated cancer.
- About ¼ of oropharyngeal cancers are HPV-positive.
- While HPV-positive oropharyngeal cancer generally portends better survival compared with HPV-negative oropharyngeal cancer, there is a paucity of data describing mortality trends.

Objective

- To describe trends in oropharyngeal cancer incidence-based mortality in the United States in the last three decades.

Methods

- **Data Source, Study Population, and Study Design**
  - **Data Source:** Surveillance, Epidemiology, and End Results 9 database.
  - **Study Population:** Patients who died from first primary oropharyngeal squamous cell carcinoma within 10 years of diagnosis from 1985-2016.
  - **Study Design:** Retrospective cohort.
  - **Cohort Size:** 12,102 patients.
- **Study Measures**
  - **Primary Outcome:** Death from oropharyngeal cancer.
  - **Independent Variables:** Sex, race, age at diagnosis.
- **Statistical Analysis**
  - Rate ratios (RRs) determined which groups had the highest age-adjusted mortality rates (AAMRs).
  - Jointpoint regression calculated annual percentage changes (APCs) and average annual percentage changes (AAPCs) to estimate increases/decreases in annual AAMRs.

Results

<table>
<thead>
<tr>
<th>Category</th>
<th>n (%)</th>
<th>AAMR per 100,000 Persons</th>
<th>RR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>12,102 (100%)</td>
<td>1.16</td>
<td>-</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>3,032 (25.1%)</td>
<td>0.53</td>
<td>Reference</td>
</tr>
<tr>
<td>Male</td>
<td>9,070 (74.9%)</td>
<td>1.91</td>
<td>3.58 (3.43, 3.73)</td>
</tr>
<tr>
<td>Age at Diagnosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65 and older</td>
<td>5,643 (46.6%)</td>
<td>4.49</td>
<td>Reference</td>
</tr>
<tr>
<td>40-64</td>
<td>6,336 (52.4%)</td>
<td>1.90</td>
<td>0.42 (0.41, 0.44)</td>
</tr>
<tr>
<td>15-39</td>
<td>119 (1.0%)</td>
<td>0.03</td>
<td>0.01 (0.01, 0.01)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>9,550 (78.9%)</td>
<td>1.11</td>
<td>Reference</td>
</tr>
<tr>
<td>Black</td>
<td>2,164 (17.9%)</td>
<td>2.28</td>
<td>2.06 (1.96, 2.16)</td>
</tr>
<tr>
<td>Asian/Pacific Islander/American</td>
<td>378 (3.1%)</td>
<td>0.42</td>
<td>0.37 (0.34, 0.42)</td>
</tr>
</tbody>
</table>

Main Findings

- This study included 12,102 patients who died from first primary OPSCC from 1985-2016 with an AAMR of 1.16 per 100,000 persons.
- AAMRs among males were 3.58 times higher than for females (RR = 3.58, 95% CI 3.43, 3.73).
- AAMRs among blacks were about 2 times higher than whites (RR = 2.06, 95% CI 1.96, 2.16) but AAMRs among API/AIANs were 63% lower than whites (RR = 0.37, 95% CI 0.34, 0.42).
- From 1985-2009, AAMRs for first primary oropharyngeal cancer decreased approximately 1.92% annually (AAPC = -1.92, 95% CI -2.27, -1.56) but remained stable from 2009-2016, which resulted in an average annual decrease of -1.31% from 1985-2016 (AAPC = -1.31, 95% CI -1.84, -0.78).
- When stratified by race or sex, all groups exhibited significant decreases in mortality.
  - However, whites experienced significantly more decrease than blacks (white AAPC = -0.76, 95% CI -1.33, -0.17; black AAPC = -3.36; 95% CI -3.85, -2.87).
  - AAMRs significantly decreased among ages 65 and older (AAPC = -0.88, 95% CI -1.63, -0.13), while AAMRs for ages 15-39 and 40-64 remained stable.

Implications

- There have been significant decreases in oropharyngeal cancer mortality in the last three decades in the United States across age groups, race, and sex.
- Although blacks had the strongest decrease in mortality from oropharyngeal cancer, they still had the highest mortality rate in 2016, emphasizing the need for care for smoking-related oropharyngeal cancer.

Limitations

- Retrospective study – cannot establish causality.
- Only patients who died from oropharyngeal cancer within 10 years of diagnosis could be included to prevent having a cumulatively larger set of patients diagnosed in previous years.

Contact Information

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