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Characterization of Sociodemographic and Clinicopathological Features and Associated Outcomes of 44,084 Patients With Anal Squamous Cell Cancer in the National Cancer Database

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Background:

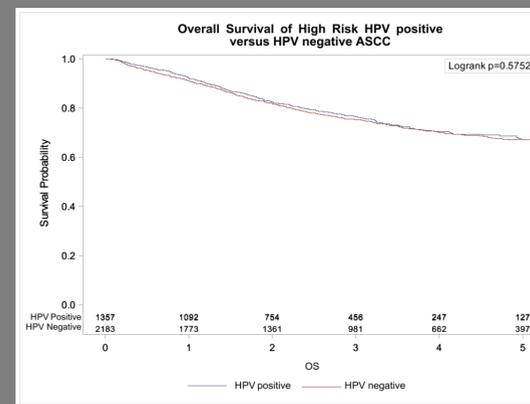
- Although Anal Squamous Cell Cancer (ASCC) is rare, recent literature suggests that its incidence is rising¹
- There are conflicting reports regarding the relationship between HPV status and survival^{2,3,4}
- There are limited data on the relationships between sociodemographic and clinicopathological features and outcomes of ASCC pts.

Methods:

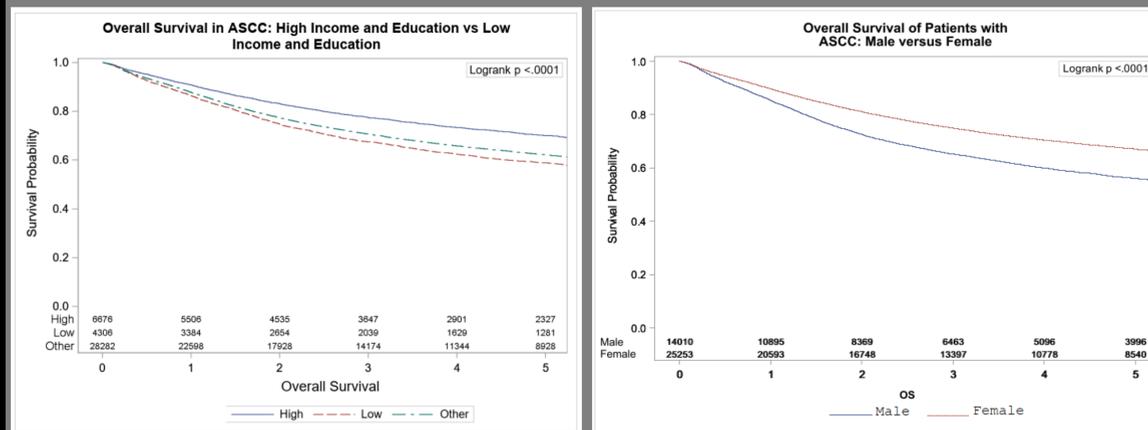
- Patients diagnosed with ASCC between 2004 and 2016 were retrospectively reviewed.
- Data obtained from the NCDDB were used to examine the impact of sociodemographic status on clinicopathological features and outcomes.
- Patients were categorized based on:
 - Low (median <\$38,000) or high (≥\$68,000) income
 - Low (>21% with no high school diploma) or high (<7% with no high school diploma) education areas based on zip code at time of diagnosis.
- Logistic regression and chi-square were used to examine differences between groups.

1. Deshmukh, A. A. *et al.* Recent Trends in Squamous Cell Carcinoma of the Anus Incidence and Mortality in the United States, 2001–2015. *JNCI J. Natl. Cancer Inst.* **112**, 1–10 (2019).
 2. Jhaveri, J. *et al.* Prognostic relevance of human papillomavirus infection in anal squamous cell carcinoma: Analysis of the national cancer data base. *J. Gastrointest. Oncol.* **8**, 998–1008 (2017).
 3. Williams, G. R., Lu, Q. L., Love, S. B., Talbot, I. C. & Northover, J. M. A. Properties of HPV-positive and HPV-negative anal carcinomas. *J. Pathol.* **180**, 378–382 (1996).
 4. Serup-Hansen, E. *et al.* Human papillomavirus genotyping and p16 expression as prognostic factors for patients with American Joint Committee on Cancer stages I to III carcinoma of the anal canal. *J. Clin. Oncol.* **32**, 1812–1817 (2014).

HPV status did not impact OS in patients with ASCC



Male gender was associated with increased risk of death



Patients living in low income and low education areas were associated with worse survival outcomes

Results:

- In total, 44,084 patients with ASCC were identified with the following characteristics:
 - Median age 59 years
 - 86% white, 11% black
 - 64% female
 - 29.7% lived in high vs 19.8% lived in low income areas
 - 22.9% lived in high vs 17.8% lived in low education areas
 - 50% had government (Gov) insurance, 43% had private insurance, 7% were uninsured
- Male gender (HR 1.62, CI 1.41-1.85, p <0.001), low income area (HR 1.28, CI 1.19-1.37, p =0.014), and insurance status (Gov, HR 1.55, CI 1.32-1.82, p < 0.001) and uninsured, (HR 1.37, CI 1.37-1.85, p =0.039) were associated with a higher risk of death.
- After adjusting for age, sex, race, stage, grade, insurance status, and comorbidity, patients from low income/education (n=6695) vs high income/education (n=4316) areas had a 33% increased risk of death (HR: 1.33, p<0.001).
- Patients with stage IV ASCC in the low income/education (n=227) vs high income/education (n=295) groups had worse overall survival (mOS, 1.4 vs 1.9 yrs, p<0.020).
- Of the 44,084 patients, 5461 (12.4%) had confirmed HPV status.
 - Of these, 2658 (48.7%) were HPV positive (high risk subtypes) and 2803 (51.3%) were HPV negative
- Compared to the HPV- pts, HPV+ pts were more likely to be women (71.8% vs 67.8%, p=0.001), have stage 3 (38.1% vs 33.6%) or stage 4 (7.9% vs 5.9%, p<0.001) cancer, and have poorly differentiated (29.5% vs 25.6%, p<0.001) tumors.
- There were no significant differences in race, education, income, metro area, insurance status, or comorbidity among the HPV+ and HPV- pts.
- HPV status did not impact OS (HR 0.92, CI 0.81-1.04, p = 0.195).