**ABSTRACT**

Objective: Head and neck sweat gland adenocarcinoma (HNSGA) is an extremely rare malignancy. We present the first population-based analysis regarding this entity.

Methods: Using the Surveillance, Epidemiology, and End Results registry from 2000 to 2013, we extracted 627 cases of HNSGA. Data were analyzed for incidence trends, demographic and clinicopathologic traits, and predictors of disease-specific survival (DSS).

Results: The majority of HNSGA cases were white, males by gender, and 60-79 years old by age group. The incidence was 0.036 per 100,000 people. Tumors most often presented as localized disease and histologic grade II/III. The skin of the face was the most common primary site (43.4%), followed by the scalp and neck (31.6%). Overall 5-, 10-, and 20-year DSS were 94.6%, 89.6%, and 79.8%, respectively. Ethnicity did not affect survival, while a younger age at diagnosis and female sex conferred an advantage at 10 years (P = 0.0191), and 5 years (P = 0.0191), respectively. The origin of the HNSGA (apocrine versus eccrine) did not affect outcomes. Regional and distant disease predicted worse DSS at 5-, 10-, and 20-years (P = 0.0026, P = 0.001, P = 0.001, respectively). Compared to grade I/II disease, grade III/IV dramatically decreased survival at 5-, 10-, and 20-years DSS (P = 0.0035, P = 0.0035, P = 0.0011, respectively). Scalp and neck HNSGA exhibited the poorest 20-year DSS compared to other primary sites (P = 0.0024).

Conclusions: We present the largest cohort of HNSGA. Significant poor prognostic indicators include older age, higher tumor grade, greater extent of invasion, and a primary site of the scalp or neck.

**INTRODUCTION**

While the literature on head and neck sweat gland adenocarcinoma (HNSGA) is limited, other primary sites have been studied extensively. Sweat gland adenocarcinoma (SGA) is a rare adenocarcinoma that most commonly arises in the palms and soles. It also occurs in various other sites including the eyelids, scalp, foot digits, breast, axilla, and nose. Head and neck cases comprise about 33.6% of all SGAs.

SGA usually begins as a painless red or violet papule that gradually progresses to a solid infiltrating nodule. SGAs can spread via lymphatics; common sites of distant metastases include liver, lung, and bone. The treatment of choice is wide surgical excision with regional lymph node dissection when there is nodal metastasis. The efficacy of adjuvant chemotherapy and radiotherapy is controversial.

There is a great paucity of literature on HNSGA. This study utilizes the Surveillance, Epidemiology, and End Results (SEER) database to conduct a population-based analysis to gain insight into these malignancies. We aim to analyze demographic and clinicopathologic traits of HNSGA and to identify poor prognostic indicators. Since SGA tumors have been difficult to classify due to their heterogeneity, our findings may also assist in developing a standardized classification scheme.

**MATERIALS AND METHODS**

The SEER 18 database was used to extract all patient case data for HNSGA during the years 1973 to 2013. The cancer registry, actively maintained by the National Cancer Institute (Bethesda, Maryland) includes sourced information from 18 sites, representing 28% of the US population. It contains all case data regarding patient demographics, tumor-specific properties, incidence rates, and survival. Since this information is publicly available and devoid of any identifying health information, the present study has been exempt from the Institutional Review Board approval as per the policies put forth by Rutgers New Jersey Medical School (Newark, New Jersey).

Extracting data from the SEER 18 database was initiated by using the corresponding International Classification of Disease for Oncology, 3rd ed., topography codes for SGA (8410/3), and apocrine adenocarcinoma (8410/3). The resultant cases were then restricted to only head and neck primary sites, corresponding to C50-C53 codes for the lips, eyelids, external ear, skin of the face (unspecified); scalp and neck, and connective/tissue of the head and neck (C00-C01, C44,C44.4, C44.9). Demographic analysis was then accomplished by age, gender, and race. Examination of tumor characteristics was achieved by stratifying cases by primary site, A.C.C. and TNM staging, histologic origin, and site. SEER takes into account regional and distant means of diagnosis was utilized instead of A.C.C. staging in survival analysis. Because of the lack of A.C.C. information present in survival data, all cases are included in the survival tables, however, only those with known values were utilized in distribution calculations.

Incidence trends for HNSGA cases between the years 2000 and 2013 were reported per 100,000 people, and adjusted to the standard 2000 U.S. population (Census P25-110). The annual percentage change (APC) of incidence was observed by 1-year endpoints. Weighted least squares were utilized in APC significance testing.

Incident case data was extracted from SEER*Stat 8.2.4 (National Cancer Institute, Bethesda, MD). Data were imported and organized in Microsoft Excel 2016 (Microsoft Corporation, Redmond, WA). When calculating disease-specific survival (DSS), all untraced patients were excluded from analysis. Traced patients were then assigned a “1” or “0” based on the standard binary scheme utilized in Kaplan-Meier analysis at 3, 10, and 20 years. JMP Statistical Discovery 13 was used to measure survival rates and generate Kaplan-Meier curves. Significance levels for all tests were set at α = 0.05.

**REFERENCES**

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