Introduction: Sinonasal neuroendocrine carcinoma (SNEC) is a rare, aggressive tumor usually associated with a poor prognosis. This study analyzes clinicopathological characteristics and survival outcomes of SNEC using population-based data.

Methods: The Surveillance, Epidemiology, and End Results (SEER) database (1973-2011) was queried for SNEC cases. Data analyzed included patient demographics, incidence, treatment modality, and survival.

Results: 201 cases of SNEC were identified. Mean age at diagnosis was 55.8 years (±15.7 years). Overall 5-year disease-specific survival (DSS) rate for SNEC was 50.8%. Five-year survival analysis for SNEC by site revealed DSS of 80.7%, 59.2%, 34.5%, and 31.0% for the sphenoid sinus, nasal cavity, maxillary sinus, and ethmoid sinus respectively. Cox proportional hazard analysis revealed greater disease-specific survival rates for patients with SNEC. Median survival rates for patients with SNEC by site were 15.4 years, 8.1 years, 7.3 years, and 7.4 years for the nasal cavity, maxillary sinus, sphenoid sinus, and ethmoid sinus respectively (p = 0.0014).

Conclusions: SNEC commonly presents at an advanced-stage with poor survival outcomes. Negative prognostic factors include primary tumor site and advanced stage disease. SNEC is a highly aggressive tumor necessitating surgery and/or adjunct radiation therapy as the treatment of choice.

Table 1: Demographic and clinicopathological characteristics of sinonasal neuroendocrine carcinomas (SNEC) (1973-2011)

<table>
<thead>
<tr>
<th>Site</th>
<th>n</th>
<th>DSS p-value</th>
<th>RS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal cavity</td>
<td>201</td>
<td>50.8%</td>
<td></td>
</tr>
<tr>
<td>Maxillary sinus</td>
<td>82</td>
<td>59.2%</td>
<td>0.014*</td>
</tr>
<tr>
<td>Sphenoid sinus</td>
<td>43</td>
<td>34.5%</td>
<td>0.009*</td>
</tr>
<tr>
<td>Ethmoid sinus</td>
<td>35</td>
<td>31.0%</td>
<td>0.004*</td>
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</tbody>
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Table 2: 5-year survival analysis for SNEC by site

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Table 3: Cox proportional hazard regression of SNEC by site

<table>
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<tr>
<th>Site</th>
<th>HR</th>
<th>95% CI</th>
<th>p-value</th>
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<td>1.21-3.73</td>
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<td>0.113-11.0</td>
<td>0.950</td>
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Figure 1: Kaplan-Meier analysis of 5-year disease-specific survival (DSS) for SNEC grouped by histology.

Figure 2: Kaplan-Meier analysis of 5-year disease-specific survival (DSS) for SNEC grouped by treatment modality.

Figure 3: Kaplan-Meier analysis of 5-year disease-specific survival (DSS) for SNEC grouped by age.

Figure 4: Kaplan-Meier analysis of 5-year disease-specific survival (DSS) for SNEC grouped by sex.

Figure 5: Five-year disease-specific survival by year of diagnosis for SNEC, SNEC-1, and SNEC-2 neuroendocrine carcinoma.

Analysis of Demographic and Clinicopathological Factors

Table 3: Demographic and clinicopathological characteristics of SNEC (1973-2011) (Table 4)

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Table 4: Demographic and clinicopathological characteristics of SNEC (1973-2011)

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REFERENCES

1. Forthofer R, D'Angio GJ, WHO Classification of Tumours of the Head and Neck. 2nd ed. IARC Press, Lyon, p. 178.* Additional references are available in the online version of this article on the SEER website. *Note: The survival rate is calculated using the Kaplan-Meier method.