

Access to Care and Outcomes for Neuroendocrine Tumors: Does Socio-Economic Status Matter? A Population-Based Analysis

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Background: Despite rising incidence, Neuroendocrine Tumors (NET) are a poorly understood malignancy lacking standardized care. Differences in socioeconomic status (SES) may further worsen the impact of non-standardized care. We examined the impact of SES on NET peri-diagnostic care patterns and outcomes.

Methods: We conducted a population-based cohort study, within a universal healthcare system, of adults with NET. NET cases identified from a provincial cancer registry (1994-2009) were divided into low (1st and 2nd income quintiles) and high SES (3rd, 4th, 5th quintiles). Utilization Band (RUB) captured expected healthcare need based on baseline comorbidities. We compared peri-diagnostic healthcare utilization (-60 days to +6 months), metastatic recurrence, and overall survival (OS) between groups.

Results: Of 4966 NET patients, 38.3% had low SES. Age, gender, and RUB did not differ among groups ($p=0.13$). Neither primary NET sites ($p=0.15$) nor metastatic presentation differed ($p=0.31$). Patients with low SES had higher mean number of physician visits (20.1 ± 19.9 vs 18.1 ± 16.5 ; $p=$) and imaging studies (56 ± 50 vs 52 ± 44 ; $p=0.009$) leading to NET diagnosis. Primary tumor resection ($p=0.14$), hepatectomy ($p=0.45$), systemic therapy ($p=0.38$), and liver embolization ($p=0.13$) rates did not differ with SES. Metastatic recurrence was more likely with low SES (41.1% vs 37.6% ; $p=0.01$) over a 61.7 months median follow-up. 10-year OS was inferior with low SES (47.1% vs 52.2% ; $p<0.01$). Low SES was associated with worse OS (HR 1.16; 95%CI: 1.06-1.26) after adjustment for age, gender, comorbidity burden, primary NET site, and rural living.

Conclusion: Low SES was associated with need for more physician visits and imaging to reach NET diagnosis, but not with more common advanced stage presentation or impact on patterns of therapy. Long-term outcomes were inferior for low SES patients, with more frequent metastatic recurrence and worse 10-year OS. This data provides further insight for future directives in enhancing healthcare delivery particularly in NET patients with low SES.