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Symptom burden and outcomes among patients with early-onset and average-onset neuroendocrine neoplasms.

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BACKGROUND

The incidence of neuroendocrine neoplasms (NENs) is rising, particularly among younger individuals. However, data comparing clinical features and outcomes between early-onset NENs (EO-NENs) and average-onset NENs (AO-NENs) remain limited. Using a large national hospitalizations database, we aimed to compare patient characteristics, symptom burden, and clinical outcomes between these groups.

METHODS

We identified all hospitalizations involving patients with neuroendocrine neoplasms (NENs) in the National Inpatient Sample (NIS) from 2016 to 2020 using ICD-10 codes. Hospitalizations were stratified into an early-onset cohort (age < 50 years) and a late-onset cohort (age ≥50 years). Demographic characteristics, symptom burden, treatment interventions, and clinical outcomes were extracted and compared between cohorts. Independent sample t-tests were used for continuous variables, and chi-squared tests were used for categorical variables. A p-value of < 0.05 was considered statistically significant.

RESULTS

There were 22,555 hospitalizations with EO-NENs (median age 42.0) and 149,470 with AO-NENs (median age 67.0), respectively. The EO-NENs cohort had more females (55.3% vs. 49.3%, $p < .001$), a lower Charlson Comorbidity Index (CCI) (6.3 vs. 9.7, $p < .002$), and a greater likelihood of private insurance as primary payer (59.3% vs 28.3%, $p < .001$). Hospitalizations for EO-NENs were more commonly associated with tumors of intestinal and thymic origin ($p < .001$). EO-NENs hospitalizations experienced a substantially higher symptom burden, including more nausea/vomiting (8.6% vs. 4.7%, $p < .001$), constipation (13.9% vs. 10.8%, $p < .001$), abdominal pain (1.9% vs 1.3%, $p < .001$) and anxiety (18.3% vs. 14.0%, $p < .001$). However, AO-NENs hospitalizations had higher rates of acute complications (heart failure, liver failure, sepsis) and in-hospital mortality (6.2% vs. 4.0%, $p < .001$). Early-onset hospitalizations underwent more chemotherapy (6.1% vs. 4.2%, $p < .001$) and surgical resection.

CONCLUSIONS

We demonstrate significant clinical differences between EO- and AO-NENs, notably a higher symptom burden and relatively favorable outcomes. These data add to a growing body of literature indicating that EO-NENs characterize a clinically distinct subset. These findings underscore the need for age-adapted care pathways and further research into the unique biology that underpins the distinct clinical features of EO-NENs.

ABSTRACT ID 33465

