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Survival After Resection of Poorly Differentiated Gastroenteropancreatic Neuroendocrine Neoplasm: Association of Nodal Involvement and Survival

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BACKGROUND: Resection of poorly differentiated gastroenteropancreatic neuroendocrine neoplasm (PD-GEP-NEN) is generally contraindicated due to the risk of systemic dissemination. The small number of these patients who do undergo surgery have outcomes that are only sparsely described. We hypothesize that nodal involvement negatively predicts survival following resection of PD-GEP-NEN.

METHODS: We performed a retrospective cohort study of patients in the California Cancer Registry with poorly differentiated GEP-NEN who had no clinical evidence of distant metastasis at diagnosis (M0) between 2000 and 2012. Patients were included if they underwent surgical resection of their primary tumor. Nodal positivity was assessed on final pathology. An adjusted Cox-proportional hazards model was used to assess the risk of death by number of positive nodes.

RESULTS: Of a total of 1,734 patients (48% female). Colon was the most common site (42%) followed by stomach (16%), pancreas (16%), small intestine (14%). Median survival among all patients was 24 months. Nodes were negative in 23% of patients while 30% had 1-3 positive nodes, 35% had 3-12 positive nodes, and 11% had >12 positive nodes.

Median survival was correlated with positivity. Median survival was not reached among those with no positive nodes however was 33 months if 1-3 nodes were positive and 14 and 9 months if 4-12 or >12 nodes were positive, respectively. Controlling for tumor size and the number of nodes examined, each additional positive node was associated with a 0.3% significant increase in the hazard of death (HR 1.003, 95% CI 1.0004-1.005, p = 0.02).

CONCLUSION: Because patients with PD-GEP-NEN have a poor prognosis, determining which patients, if any, will derive benefit from surgery is a challenge. Our data suggest that preoperative assessment of nodal positivity should be used when considering surgery for non-disseminated PD-GEP-NEN.

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