

## Prognostic Validity of the American Joint Committee on Cancer (AJCC) Staging Classification for Midgut Neuroendocrine Tumors

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**Background:** The American Joint Committee on Cancer (AJCC) staging manual has introduced a TNM staging classification for jejunal-ileal (midgut) neuroendocrine tumors (NETs). This classification has not been validated in a population consisting solely of midgut NETs.

**Methods:** Patients with jejunal and ileocecal NETs treated at the Moffitt Cancer Center between 2000 and 2010 were assigned stages (I-IV) based on TNM staging classification. Kaplan-Meier analyses for overall survival (OS) were performed based on TNM stage and pathologic grade using log-rank tests. Survival time was measured from time of initial diagnosis until date of last contact or date of death. Multivariate modeling was performed using Cox proportional hazards regression.

**Results:** We identified 691 patients with histologically-proven jejunal and ileocecal NETs. The AJCC classification in aggregate was highly prognostic for overall survival ( $P < 0.00001$ ). 5-year overall survival (OS) rates for stages I, II, III and IV were 100%, 100%, 91% and 72% respectively. The survival difference between stages III and IV was significant ( $p < 0.00001$ ); the difference between stages I/II versus III was not statistically significant ( $p = 0.1$ ). Among patients with stage IIIB tumors, 5-year survival rates were 95% for resectable tumors versus 78% for unresectable mesenteric tumors ( $P = 0.02$ ).

**Conclusions:** Stages I and II midgut NETs are associated with identical survival rates and are unlikely to be prognostically distinct. Stage IIIB tumors are heterogeneous, with significant differences in survival observed between resectable mesenteric lymph nodes versus unresectable masses in the root of the mesentery. Revisions to the current AJCC staging classification may therefore be warranted.