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Prognostic Criteria Development for Metastatic Well- or moderately-differentiated Neuroendocrine Tumors

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Background: Neuroendocrine tumors (NET) are a unique subset of malignancies that share certain histologic, cytologic, and biochemical features. While tumor differentiation, staging, and Ki-67% are important factors in NET prognosis, no well-defined prognostic criteria exist for stage IV (metastatic) patients with well-differentiated/Ki-67 of <5% or moderately-differentiated/Ki-67 of 5-10% NET. As the five-year survival is only 67%, it is imperative to identify prognostic factors to aid in both choosing treatment timing and aggressiveness and stratifying patients for clinical trials. The aim of this research was to create a NET prognostic tool and correlate patient characteristics with tumor markers.

Methods: Adult patients with well-to-moderately differentiated metastatic NET treated at the OSU Comprehensive Cancer Center between 2000-2005 were included in this retrospective study. Gender, age and carcinoid syndrome at diagnosis, primary/metastatic tumor sites, treatments administered, and survival length were evaluated. Pathologic characteristics and tumor markers assessed at diagnosis and throughout the clinical course ($\geq$3 years) were examined. Data is reported as median (range) unless otherwise noted.

Results: Fifty patients, 22 men and 28 women, were examined. Age at diagnosis was 54.5 years (25-84) and 48% of patients exhibited carcinoid syndrome features. The primary NET site was small bowel in 42%, pancreas in 18%, other locations in 14%, and unknown in 26%. Eighty-eight percent of tumors were well-differentiated while 12% were moderately-differentiated. Metastases were found in the liver in 92%, mesentery in 16%, and

bone in 14% of patients. Twenty-two patients were alive at data analysis. Median survival was 85 months (12-129). Tumor markers and their relationship to clinical parameters, including survival, are under analysis.

Conclusion: The clinical characteristics and disease course of metastatic NET in our cohort demonstrates similarities and differences compared to published literature. Further investigation of these features may help elucidate the tools necessary for more accurate assessment of NET prognosis.