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Neuroendocrine Tumors: A Review of the Sunnybrook Odette Cancer Centre Database

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Background: Neuroendocrine tumors (NETs) are an uncommon and heterogeneous group of malignancies. A number of reviews have been published attempting to better identify important factors in predicting overall survival, however they are often limited by small sample size and were published before new therapy options came into widespread use.

Aims: We reviewed our experience at our NETs multidisciplinary reference centre to identify important patient and tumor characteristics associated with improved overall survival.

Methods: The Sunnybrook Odette Cancer Centre NETs Database was retrospectively reviewed. All patients with a pathologically confirmed diagnosis of NET were included in the analysis. Patient characteristics, tumor markers and pathology, treatment, and response to treatment were recorded. Univariate and multivariate Cox-regression analyses were performed.

Results: A total of 327 patients were included in the analysis. In univariate analysis, factors associated with improved overall survival included local/regional disease at presentation ($p<0.001$), lower Ki67 index ($P<0.001$), normal chromogranin A at presentation ($p=0.008$), urinary 5-hydroxyindoleacetic acid drop following treatment ($p=0.024$), symptom response to treatment ($p<0.001$), surgery on primary tumor ($P<0.001$), surgery on metastases ($p=0.003$), having multiple surgeries ($p<0.001$), and treatment with long-acting somatostatin (LAS) ($P=0.029$). In multivariate analysis, treatment with LAS ($p<0.001$, HR 0.141, 95%CI 0.064-0.31) and having multiple surgeries ($p=0.045$, HR 0.591, CI 0.354-0.988) were shown to be independent predictors of improved overall survival.

Conclusions: Treatment with long-acting somatostatin and having multiple surgeries were shown to be independent predictors of improved overall survival in NETs. This data further supports the use of aggressive medical and surgical intervention in a multi-modal approach for advanced NETs. This may be best achieved in the setting of NETs multidisciplinary reference centres.