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Neuroendocrine Tumors and Obesity: A Targeted Literature Review

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BACKGROUND: Worldwide, obesity is associated with considerable health burden, both as a chronic disease and as a risk factor for multiple comorbidities and malignancies. A targeted literature review was conducted to evaluate the association of obesity and metabolic syndrome on risk and outcomes in neuroendocrine tumors (NETs).

METHODS: A comprehensive search strategy was developed to identify relevant English articles from MEDLINE and Embase, published January 2006 through January 2017. Additionally, grey literature was assessed through hand searching of the US clinical trials database, recent conference proceedings, internet sites, and literature from key NET clinical experts.

RESULTS: A total of 42 publications were identified through database searching post abstract screening; 27 were included for further exploration with most publications focused on specific tumor types. Eleven posters were identified upon review of conference proceedings. Eight publications evaluated obesity, diabetes, or metabolic syndrome as a risk factor in NET development. Diabetes was associated with pancreatic NET development in 3 of 4 studies with the strongest association for recent onset disease. Conflicting results were found in relation to obesity as a NET risk factor. Four studies evaluated the impact of obesity on NET outcomes across multiple treatments (i.e., somatostatin analogs, surgery or chemotherapy) with 2 studies reporting an increased BMI to be

protective while 2 studies found the inverse. Hyperglycemia was shown to have a protective effect on NET outcomes in small case-control studies; however, metformin use may confound these findings.

CONCLUSION: Broad generalizations surrounding the effects of diabetes, metabolic syndrome, and obesity on the risk and outcomes of NETs may not be warranted at this time given currently available evidence. Future research should focus on understanding the impact of obesity on NETs, using a clear obesity definition, and accounting for the relationship between NETs, diabetes and other