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Systematic Literature Review of Octreotide's Antitumor Effects in Neuroendocrine Tumors

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BACKGROUND: For nearly three decades, octreotide has been a mainstay of neuroendocrine tumor (NET) therapy, although approved in the US only for carcinoid symptom control, not tumor control. The objective of this study was to summarize existing literature on the antitumor effect of octreotide in NETs.

METHODS: A systematic literature review of both clinical trials and observational studies was conducted in PubMed, Embase, and Cochrane through January 18, 2017. Conference abstracts for 2015 and 2016 from five scientific meetings were also searched.

RESULTS: Of 42 articles/abstracts identified, 13 unique studies compared octreotide with active or no treatment. Two of the 13 studies were clinical trials, and the remaining were observational studies. Based on study design and sample size, the most informative literature is presented here. The phase 3 PROMID clinical trial showed that octreotide long-acting release (LAR) significantly prolonged time to tumor progression compared with placebo in patients with functionally active and inactive metastatic midgut NETs (hazard ratio [HR], 0.34; 95% confidence interval [CI], 0.20-0.59) (Rinke, 2009), but no difference in overall survival was observed (Rinke, 2017). Retrospective observational studies found octreotide LAR treatment was associated with significantly longer overall survival (OS) than no octreotide LAR treatment for patients with distant metastases (HR, 0.68; 95% CI, 0.55-0.84) but not for those with local/regional disease (Shen, 2014; Shen, 2015). Another retrospective study found that ≤ 20 mg octreotide LAR was associated with significantly worse OS

than 21-30 mg (HR, 2.00; 95% CI, 1.32-3.04), but ≥ 30 mg was not associated with significantly better OS (Shen, 2016).

CONCLUSION: The clinical trial and observational studies with informative evidence seem to support octreotide LAR's antitumor effect on time to tumor progression or OS. This review showed the rarity of existing studies assessing octreotide's antitumor effect; future research in this area is warranted.