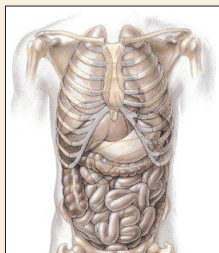


■ Article

Update on the Management of Neuroendocrine Tumors: Focus on Somatostatin Antitumor Effects

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Although neuroendocrine tumors (NETs) have been recognized as a family of complex malignancies since 1907, major progress has been made only in the past 20 years in understanding and managing the disease. The detection and reported incidence of NETs have increased fivefold since 1973, suggesting that the tumors may be more common than previously believed. NETs arise predominantly in the gastrointestinal tract but can occur in any tissue containing endocrine precursor cells and can secrete hormone peptides that exert clinical symptoms of flushing and diarrhea. With the introduction of the somatostatin analog (SSA) octreotide in 1987, symptom management of NETs improved by diminishing morbidities and mortality associated with carcinoid syndrome. Clinical results suggest that the SSA agents octreotide and lanreotide also may provide antitumor benefits in addition to their suppression of carcinoid syndrome. Oncology nurses should be aware of the expanded role of SSA agents for symptom management and tumor control in patients with NETs and communicate treatment benefits, side-effect management, and effective adherence with patients for the optimal clinical management of NETs.

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Major progress has been made toward understanding neuroendocrine tumors (NETs) and improving their clinical management. An analysis from the nationwide Surveillance, Epidemiology and End Results (SEER) program revealed that NETs are more common than generally realized (Yao, Hassan, et al., 2008). The annual reported age-adjusted incidence of NETs increased almost fivefold from 1.09 per 100,000 people in 1973 to 5.25 per 100,000 people in 2007 ($p < 0.001$) (Yao, Hassan, et al., 2008). The increase may reflect changes in clinical practice, including refinements in disease classifications and broader use of endoscopic screening (Yao, Hassan, et al., 2008). The epidemiologic survey also showed that the prognosis for patients diagnosed with NETs depends on several factors, including tumor location, disease stage, and histology (Yao, Hassan, et al., 2008). As expected, the presence of regional or distant metastases and poorly differentiated disease were associated with poorer prognoses (Modlin, Lye, & Kidd, 2003; Yao, Hassan, et al., 2008). However, many oncology nurses and nurse practitioners may not have first-hand experience managing patients with the disease. The increasing

prevalence of patients with NETs translates into the need for oncology nurses to be educated about current and optimal treatment management for this family of malignancies.

About 60% of NETs arise from cells within the intestine (Modlin et al., 2003); however, they can originate wherever endocrine precursor cells are found, including the stomach, colon, rectum, pancreas, thymus, lungs, kidneys, ovaries, prostate, breast, and skin (Arnold, 2005). One important clinical distinction among NETs is whether they are functioning or nonfunctioning with respect to hormone secretion. Functioning NETs typically are located in the pancreas and can secrete an array of hormones associated with clinical symptoms (Arnold, 2005). Carcinoid syndrome usually arises from endocrine cells within the ileum that hypersecrete serotonin, leading to flushing, diarrhea, and bronchial obstruction (Arnold, 2005). About 33%–50% of NETs are nonfunctioning and typically do not secrete symptom-causing hormones (Arnold, 2005). Whether functioning or nonfunctioning, NETs can release peptides or hormones, such as chromogranin A (CgA), that can be detected through diagnostic testing and used as biomarkers to track disease progression in patients (Arnold, 2005).