

Chapter 24

WHAT IS THE PLACE OF THE PEPTIDE RECEPTOR RADIONUCLIDE THERAPY IN NEUROENDOCRINE TUMORS?

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INTRODUCTION

Neuroendocrine tumors (NETs) are a heterogeneous malignancies arising from neuroendocrine cells whole the body. While well-differentiated gastrointestinal neuroendocrine tumors (GINET) and lung/thymus NETs were classified as low-grade (G1) and intermediate-grade (G2), pancreatic NETs are classified as low-grade (G1), intermediate-grade (G2), and high-grade (G3) based upon mitotic count and proliferative index (Ki-67). The main curative treatment of NETs is surgery for patients with potentially resectable disease, however, approximately half of the patients initially harbor metastases. Prolonged control of symptoms and prevention of tumor growth can be provided by octreotide and lantreotide, which are somatostatin analogues, based on PROMID and CLARINET studies in patients who are not candidate for curative intent surgery (Rinke A et al., 2009, Caplin ME et al., 2014).

GINETs and pancreatic NETs have morphologically similar histology, but, their biological behavior and response to treatment are different. Wheares pancreatic NETs have a worse prognosis than gastrointestinal NETs, response to treatment is better. Among pacreatic NETs, patients with gastrinomas, which have faster growth pattern, have a shorter time to progression than other nonfunctioning endocrine pancreatic NETs. Among GINET, wheares colon NETs are associated with the worst median survival (7 months), jejenum, ileum, and ceacum are associated with better survival as 55 to 65 months (Yao JC et al., 2008). Differentiated neuroendocrine tumors mostly express subtypes of the somatostatin receptor. This allows not only treatment with the somatostatin analogs, but

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there are non-randomised studies indicating the effectiveness of sunitinib and everolimus after PRRT which have better toxicity profile compared to targeted therapies. Therefore, PRRT may be considered as a second-line therapy for patients with high uptake on pretherapy somatostatin receptor imaging, limited number of liver metastases, and low performance score in pancreatic NETs.

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