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Single Institution Experience With Peptide Receptor Radionuclide Therapy (PRRT) in Neuroendocrine Tumors (NET)



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BACKGROUND: Peptide receptor radionuclide therapy (PRRT) is a very promising systemic treatment for neuroendocrine tumors (NET). We present our initial experience with ¹⁷⁷Lu-DOTATATE since FDA approval in patients with NETs and other somatostatin receptor (SSTR) expressing malignancies.

METHODS: Eighty-two patients (40 women and 42 men, mean±SD: 62.9±10.4 years) with progressive SSTR-expressing tumors were referred to undergo PRRT with ¹⁷⁷Lu-DOTATATE from July 2018 to July 2020: 76 NETs (40 pancreas, 25 small bowel, 1 cecum, 1 appendix, 1 gastric, 1 atypical lung, and 7 of unknown primary), 4 paragangliomas, and 2 pheochromocytomas. ⁶⁸Ga-DOTATATE PET (PET/CT or PET/MRI) was obtained at baseline, after 2 cycles, and after 4 PRRT cycles. Follow-up imaging was performed with either CT, MRI, and/or PET every 3 months. RECIST and change in SSTR-density (based on change in SUVmax) were used to evaluate treatment response. Progression-free survival (PFS), objective response rate (ORR) and interim overall survival (OS) analyses were performed. Lines of prior treatments were documented.

RESULTS: 49/82 (59.8%) patients completed all 4 cycles of PRRT. 20/82 (24.4%) patients are currently being treated. 12/82 (14.6%) patients had to discontinue PRRT due to worsening comorbidities unrelated to the treatment (10/12) or toxicities related to PRRT (2/12). 1/82 (1.2%) patient was lost in follow-up.

The 11-month and 18-month PFS rates were 91% and 67%, respectively. The median follow-up time since PRRT initiation was 10±7 months (range 7–25 months). The ORR was 57%. In the interim OS analysis, 13 deaths occurred, which were unrelated to the treatment. OS at 24 months was 60%. Mean lines of prior treatment was 3.4±1.4 (range: 1–7).

CONCLUSION: In our heterogenous and heavily pretreated patient cohort, treated with PRRT for SSTR-expressing malignancies, the preliminary data show overall good results with PFS of 91% at 11 months and OS of 60% at 24 months.

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