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Peptide Receptor Radionuclide Therapy with ¹⁷⁷Lu-DOTATATE: A Single Center Experience

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BACKGROUND

¹⁷⁷Lu-DOTATATE peptide receptor radionuclide therapy (PRRT) is approved for treatment of metastatic gastroenteropancreatic (GEP) neuroendocrine tumors (NETs). Here we report our single institution experience with PRRT.

METHODS

A retrospective review of patients who received ¹⁷⁷Lu-DOTATATE at our institution was performed. Demographics, clinical and laboratory values, and post-treatment outcomes were reviewed. RECIST 1.1 and CTCAE version 5.0 guidelines were used to evaluate radiographic response and grade treatment toxicities respectively.

RESULTS

Between 2018 and 2024, 195 patients were treated with ¹⁷⁷Lu-DOTATATE. Median follow-up was 21 months. Breakdown of primary site and grading of NETs are provided in Table 1. The median and mean SUVmax of the hottest lesion on DOTATATE-PET was 41.9 and 51.5 (IQR 28.3–60.3). 106 (54%) patients had non-functional tumors. In terms of marrow toxicity, the WBC decreased by 29%±28%, platelets by 36%±27% and hemoglobin by 11%±12% during treatment. eGFR fell by an average of 7%±28% at any point in time after treatment. G3/4 anemia was observed in 10/195 (5%), G3/G4 thrombocytopenia in 6/195 (3%), 8/195 (4%) patients developed G3/G4 leukopenia. Also 7/195 (4%) patients developed G3/G4 ascites and 2/195 (1%) developed AML (1 G4 and 1 G5). 142 (72%) patients were kept on SSAs after PRRT. 19 (10%) patients were re-treated. In terms of efficacy, and radiographic response: 1 (0.5%) CR, 64 (33%) PR, 106 (54%) SD, and 15 (8%) PD. Median PFS (mPFS) for SBNET was 32 (23–38) months, mPFS for PNET was 19 (14–27) months, and mPFS for patients with other/unknown primary tumor was 27 (18–40) months, p=0.02. By grade, the mPFS for G1 was 42 (25–52) months, G2 26 (21–32) months and G3 14 (12–20) months, p <0.001. Also, the mPFS for patients ³ 70 years old was 28 (19–38) months, and for patients < 70 years old was 24 (20–31) months p = 0.459.

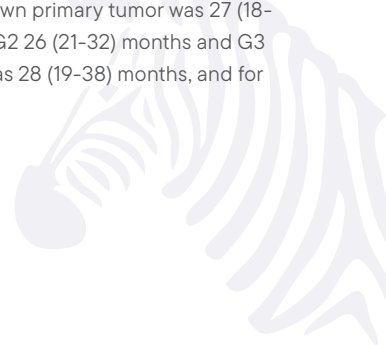


Table 1: Breakdown of primary site and grading of NETs.

Site of primary tumor	
Small intestine	80 (41%)
Pancreas	65 (33%)
Bronchial and other	50 (26%)
Grade of NETs	
Grade 1	51 (26%)
Grade 2	98 (50%)
Grade 3	31 (16%)

CONCLUSIONS

Our results mirror published results, with shorter PFS in patients with higher grade disease, and PNET compared to SBNET. Older patients had a similar PFS compared to younger patients overall. The most common toxicity was marrow toxicity, and two patients developed AML after treatment.

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