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Utility of Midpoint Imaging in Patients Receiving Peptide Receptor Radionuclide Therapy (PRRT) for Advance Progressive Gastroenteropancreatic-Neuroendocrine Tumors (GEP-NETs)

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BACKGROUND: The NETTER-1 trial formed the basis for standard practice of PRRT, consisting of 4 cycles with follow-up imaging during midtreatment and after completion to evaluate disease response. However, in clinical practice the timing of midpoint imaging varies if performed at all, and it is unclear how often it influences subsequent management. We aimed to determine the frequency at which midpoint imaging is performed during PRRT in patients with primary GEP-NET, the imaging modality most used, and if imaging results changed subsequent clinical management

METHODS: We reviewed patients at Mayo Clinic who started treatment with PRRT (Lu-177 DOTATATE) as of November 2020. Baseline patient demographics including oncology history were collected.

RESULTS: Out of 157 patients (median age 64, 0.5 male:female), 113 received midpoint imaging. Clinicians did not obtain midpoint imaging for 30. Prior to the midpoint of PRRT, 6 developed pancytopenia precluding further PRRT, and 8 passed. Midpoint imaging was obtained for 1, 91, and 21 patients before cycle 2, 3, and 4 respectively. The imaging modalities used were: 68Ga-DOTATATE PET MR (3), FDG PET MR (3), MR (41), CT (77). Some patients received 2 imaging types at midpoint.Of the 43 patients who did not complete PRRT, 12 passed prior to the next anticipated PRRT cycle. 27 had early PRRT termination based on clinical decision; of these, 21 received midpoint imaging which changed management

for only 6. In the remainder, PRRT was stopped due to cytopenias (9), functional status decline (4), or patient intolerance (2). At the time of analysis, 2 patients were lost to follow-up and 2 were still receiving PRRT.

CONCLUSION: In our clinical cohort, PRRT midpoint imaging rarely changed subsequent clinical management (6 of 113 cases).

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