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Real-World Analysis of Safety and Tolerance of Repeat Peptide Receptor Radionuclide Therapy.

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BACKGROUND: The safety and tolerability of repeat PRRT has been demonstrated in a few studies from Europe in patients with metastatic gastroenteropancreatic neuroendocrine tumors (NETs). This study will review the safety of repeat PRRT in a cohort of US patients following FDA approval of Lutetium 177 (177-Lu) DOTATATE PRRT.

METHODS: Records of patients who previously received Y-90 DOTATOC PRRT and were treated with 177-Lu DOTATATE PRRT at University of Iowa between 1/1/2018 and 10/15/2019 were reviewed. Patients who received at least 1 dose of PRRT more than 6 months prior were included. Records were evaluated for primary tumor site, Ki-67 and SSTR2A expression, extent of metastases and hepatic burden. Dosage of initial PRRT treatment, time between PRRT treatments, number of 177-Lu doses, dosage adjustments, and clinical outcomes including toxicities were also evaluated.

RESULTS: Six patients (2 females, mean age 53.8 years) with progressive well-differentiated NET (3 pancreatic, 3 small bowel) received repeat PRRT. Dosage and toxicities for initial PRRT were evaluable for 5 of 6 patients; mean follow-up was 15 months. Median cumulative dose of initial Y-90 PRRT was 360 mCi (120-420), with median 2.5 doses (1-3).

Three patients developed gastrointestinal toxicity (grade 1 and 3). Two patients developed nephrotoxicity (grade 1 and 3). No patient developed grade 3 or higher myelotoxicity.

CONCLUSION: To our knowledge, this is the first cohort of US patients treated with repeat PRRT following FDA approval of Lu-177 DOTATATE. Repeat PRRT may benefit select patients and can have an acceptable safety profile.

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