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Hepatotoxicity in Previously Treated Y-90 Metastatic Neuroendocrine Cancer Patients after PRRT: Single Institution Experience

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BACKGROUND: Metastatic neuroendocrine cancers are a rare disease process with variable progression and prognosis, ranging from a more indolent nature to an aggressive disease. Significant portion of patients will present with hepatic metastasis, resulting in hepatic failiure as a common cause of death. In the United States, a variety of therapies has been available to patients prior to the advent of peptide receptor radionuclide therapy (PRRT). It is unknown how these prior therapies, especially radioembolization, might influence the known hepatotoxicity of PRRT.

METHODS: In this retrospective review of our PRRT patients, treated between May 2018 to September 2019, we identified a total of 11 patients that had previous radioembolization. We used the CTCAE criteria to assess hepatobiliary toxicity and analyzed liver function tests at baseline (start of PRRT) and one-month post-completion.

RESULTS: A total of 11 patients were reviewed. These patients were treated previously with radioembolization to one or both hepatic lobes and were given Y-90 from 6 months to 14 years prior to initiation of PRRT. Majority of patients had received at least 3 cycles of PRRT, except for 3 patients. Using the CTCAE criteria, 1 out of 11 patients had grade 2 hepatotoxicity, while 1 had grade 1. At the end of the review, July 20, 2020, 5 out of 11 patients were deceased.

CONCLUSION: With a variety of therapies available for metastatic neuroendocrine cancer patients, it is unclear the risk of hepatotoxicity of these therapies, especially in those that were previously treated with Y-90 and subsequently had PRRT. In review of our institution's PRRT patients, we had 2 out of 11 patients that had experienced at least grade 1 hepatotoxicity based on CTCAE criteria. From our analysis, although small sample size, we conclude that the risk of hepatotoxicity is clinically significant at 18.2% and, therefore, sequencing of treatments is critical.

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