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Corticosteroid prophylaxis did not decrease tumor flare reaction in high-risk neuroendocrine tumors patients treated with ¹⁷⁷Lu-DOTATATE

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BACKGROUND

Since ¹⁷⁷Lu-DOTATATE was approved for patients with somatostatin receptor (SSTR)-positive gastroenteropancreatic neuroendocrine tumors, a tumor flare reactions including increased pain and small bowel obstruction (SBO) have been reported. A retrospective review of 22 patients treated with ¹⁷⁷Lu-DOTATATE, who were deemed to be high risk for SBO due to mesenteric and peritoneal disease burden, found that 6% of patients experienced at least 1 episode of SBO within 3 months of treatment (Strosberg, et al., 2021). Another review found that in 12 patients treated with ¹⁷⁷Lu-DOTATATE, 5 patients experienced a flare reaction including increased pain and SBO (Salner, et al., 2020). Both reviews report some success of both treatment of the flare reaction with corticosteroids and use of prophylactic corticosteroids to prevent flare reaction with future doses of ¹⁷⁷Lu-DOTATATE..

METHODS

We identified adult patients with NETs who were treated with ¹⁷⁷Lu-DOTATATE who received corticosteroids as prophylaxis for a flare reaction due to high burden of disease, significant peritoneal or mesenteric disease, or disease involvement of critical structures under IRB approval at Vanderbilt-Ingram Cancer Center. Variables including demographics, diagnosis, treatment history, and outcomes were collected within a RedCAP database.

RESULTS

Forty-one patients were identified, 51% female, with a median age of 66 (39,84). The primary disease site was small intestine (76%), with 58% of those patients being grade 1. The majority of patients (88%) received corticosteroids prior to the initiation of ¹⁷⁷Lu-DOTATATE, while 12% of patients received corticosteroids due to having a previous tumor flare after ¹⁷⁷Lu-DOTATATE administration. The majority of corticosteroid courses (98%) were for 7 days. Despite corticosteroid prophylaxis, 32% of patients still experienced a tumor flare event, with 3 patients (7%) experiencing multiple tumor flare events. SBO occurred in 10% of patients, increased pain in 27% of patients, and vision changes in 2% of patients. Adverse events (AEs) due to corticosteroids occurred in 20% of patients, with the most common AEs being hyperglycemia and insomnia. Most AEs were grade 1 or 2, however, there was one grade 3 duodenal ulcer hemorrhage requiring hospitalization and intervention.

CONCLUSIONS

Short-course corticosteroid prophylaxis to prevent tumor flare reaction in high-risk patients with neuroendocrine tumors treated with ¹⁷⁷Lu-DOTATATE did not appear to decrease the incidence of

tumor flare reactions compared to previously reported numbers. Randomized, placebo-controlled trials looking at the use of corticosteroids to prevent tumor flare reaction in patients treated with ¹⁷⁷Lu-DOTATATE are needed to fully elucidate the safety and efficacy of corticosteroids used in this setting.

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