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The Role of ⁶⁸Ga-DOTATATE PET/CT in the Management of Gastrointestinal and Pancreatic Neuroendocrine Tumors

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BACKGROUND

Despite the superiority of ⁶⁸Ga-DOTATATE PET/CT in the detection of neuroendocrine tumors, the clinical impact of using this imaging modality in surgical and medical oncology practices in the United States is not well established. Here we evaluate the impact of ⁶⁸Ga-DOTATATE PET/CT imaging in the diagnosis and management of patients with GI and pancreatic NETs at the University of Rochester Medical Center.

METHODS

Single center retrospective evaluation of patients with a diagnosis of GI or pancreatic NET who received a ⁶⁸Ga-DOTATATE PET/CT scan between January 2019 and December 2020 as identified by an automated data collection system (Hyperion). The patient's clinical history and imaging were reviewed to ascertain if ⁶⁸Ga-DOTATATE PET/CT had an impact in their clinical management as well as new lesion detection when compared to conventional imaging.

RESULTS

A total of 105 patients with a median age of 65 had a diagnosis of GI or pancreatic neuroendocrine tumor and underwent a ⁶⁸Ga-DOTATATE PET/CT scan. Of these, only 66 patients had conventional imaging within 90 days available for comparison. The primary sites of disease from the most common to least were small bowel (50.4%), pancreas (25.7%), unknown but likely GI (8.6%), appendix/colon (6.6%), gastric (5.7%), mesentery (2.9%). Most NETs were histologically moderately/well differentiated. Following ⁶⁸Ga-DOTATATE PET/CT, 38 patients (36.2%) had a change in management. Of these, 27 patients had a change in medical management with 26 patients starting systemic therapy such as PRRT, chemotherapy or sandostatin and 1 patient being down-staged and taken off sandostatin, 9 patients had a change in surgical management with 7 patients undergoing a surgical resection due to primary or metastatic lesion detection and 2 patients having cancellation of planned primary tumor resection. Amongst patients who underwent conventional imaging such as CT or MRI within 90 days of PET, 32 patients (48.4%) had new lesions identified on ⁶⁸Ga-DOTATATE PET/CT.

CONCLUSIONS

Our retrospective study demonstrates that ⁶⁸Ga-DOTATATE PET/CT resulted in a change in therapeutic management in 36.2% of patients with GI or pancreatic NET and improved lesion detection over conventional imaging in 48.4% of patients. This supports its use in the care of patients with GI and pancreatic NETs.

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