

Experience with 177Lu-Dotatate Therapy for Metastatic Neuroendocrine Cancer at a Quarternary Comprehensive Cancer Center

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Background

Treatment of progressive metastatic carcinoid can be a challenging clinical entity. 177Lu-Dotatate therapy is a recognized therapeutic option with promising phase III data for disease that has failed octreotide/lanreotide therapy. We report our experience in utilizing this emerging therapy of a large multi-state community cancer program.

Objective

Determine the effectiveness of 177Lu-Dotatate therapy in a community cancer program through evaluation of clinical symptomatic response as well as RECIST criteria on serial imaging.

Methods

This is a retrospective review of all patients treated with 177Lu-Dotatate for metastatic carcinoid from September 2018 to July 2020. Candidates for therapy were reviewed in a system-wide multi-disciplinary conference, had progressive disease on octreotide/lanreotide therapy, and a positive PET-Dotatate study. Patients were treated per institutional and manufacturer protocol with four treatments of 177Lu-Dotatate in three-month intervals.

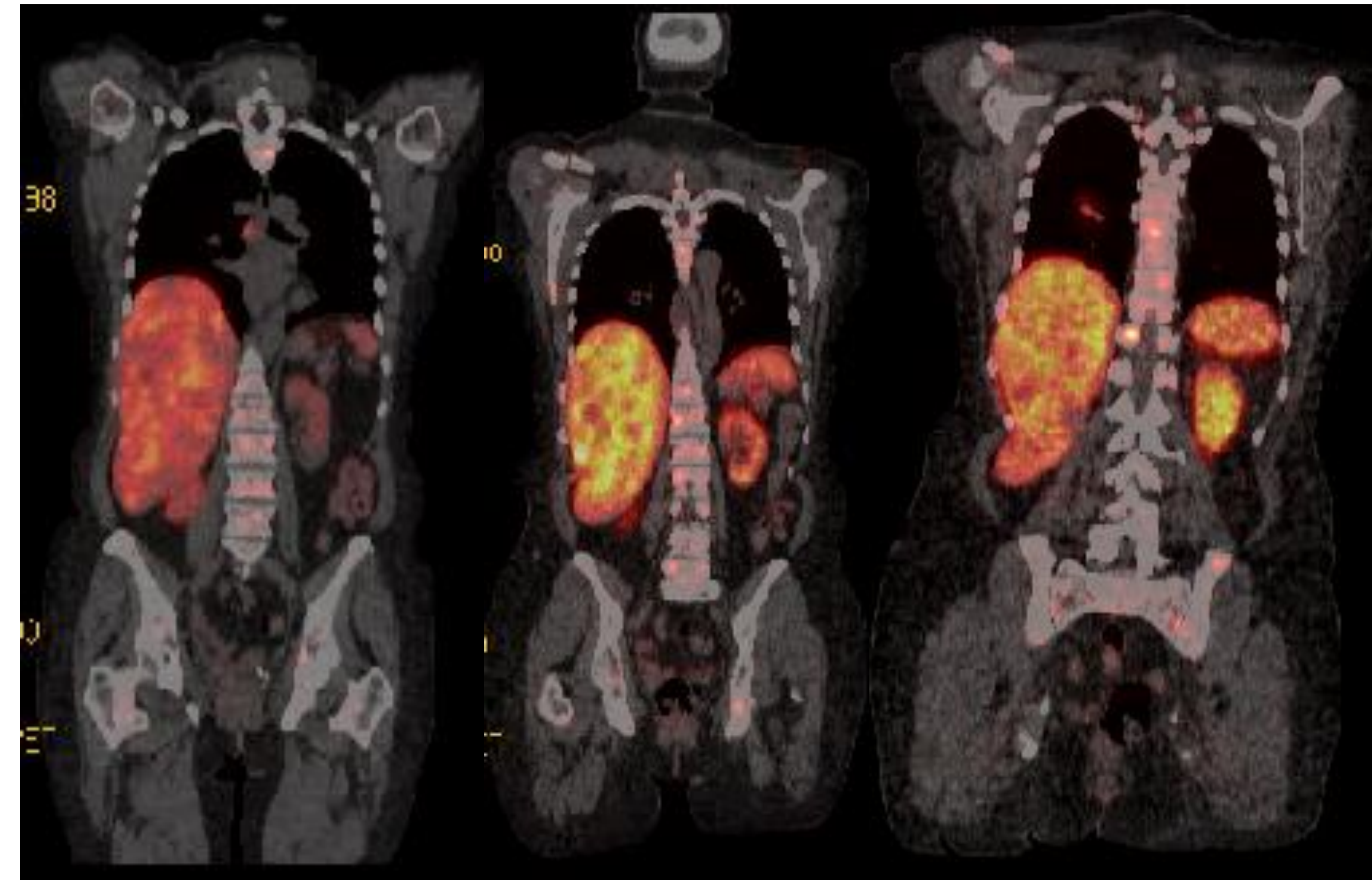
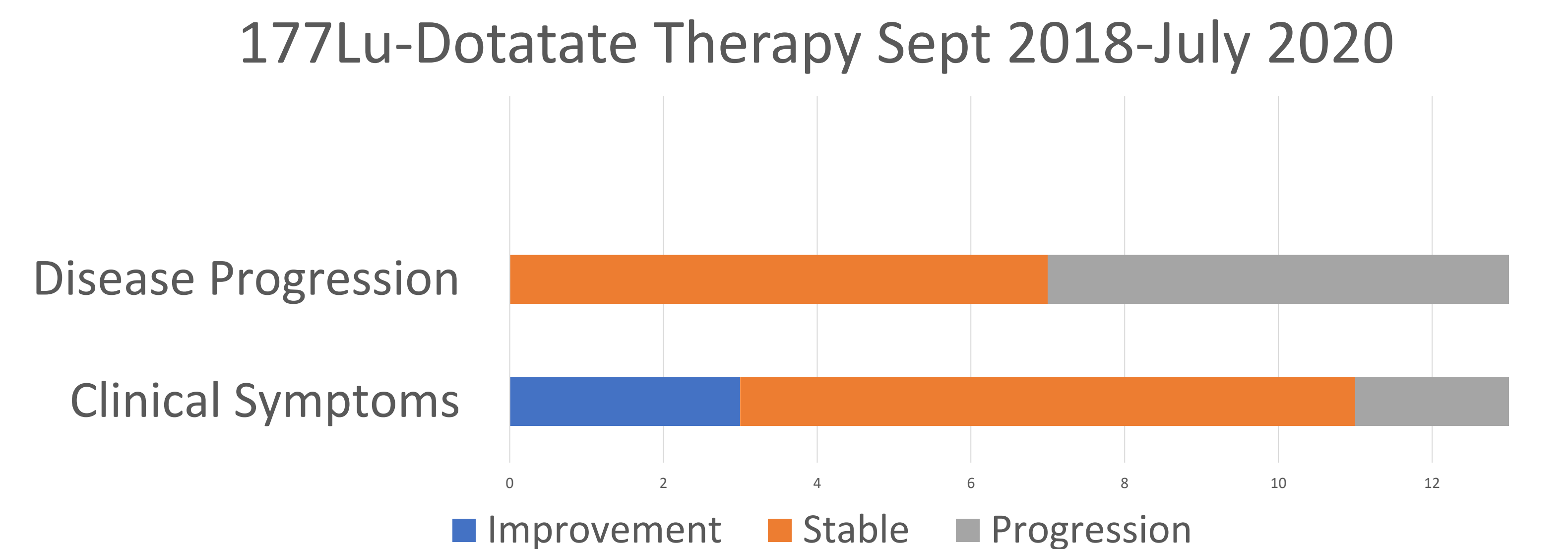


Fig 1 – Representative PET-Dotatate imaging demonstrating increased avidity in the liver and numerous multiple osseous lesions which increased/progressed on serial imaging at six months post treatment and eighteen months post treatment.



Results

From Sept 2018 to July 2020, 13 patients completed all four treatment cycles with two completing three of four treatments; in one case for rapid disease progression and the other for thrombocytopenia. Six patients demonstrated progression of disease by RECIST after completion of therapy with a mean time to progression of six months. No patients demonstrated improvement on imaging in response to therapy. Three patients had subjective improvement in symptoms after completion of therapy. Side effects of treatment included one G1 (nausea/vomiting) and two G3 (cytopenia requiring transfusion).

Conclusion

Early results of 177Lu-Dotatate therapy in our institution have not been able to reproduce the promising response rate and progression free survival demonstrated in existing phase III data.

1. Kong et al. Efficacy of Peptide Receptor Radionucleotide Therapy for Functional Metastatic Paraganglionma and Pheochromocytoma. *J Clin Endocrinol Metab*, 2017. 102(9):3278-3287.
2. Storsberg et al. Phase 3 Trial of 177Lu-Dotatate for Midgut Neuroendocrine Tumors. *N Engl J Med*, 2017. 376(2):125-135.
3. Brabander et al. Long-Term Efficacy, Survival, and Safety of 177Lu-Dotatate in Patients with Gastroenteropancreatic and Bronchial Neuroendocrine Tumors. *Clin Cancer Res*, 2017. 23(16):4617-4624.