Effect of Epigenetic Treatment on SST_2 Expression in Neuroendocrine Tumor Patients

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Background and Aims:

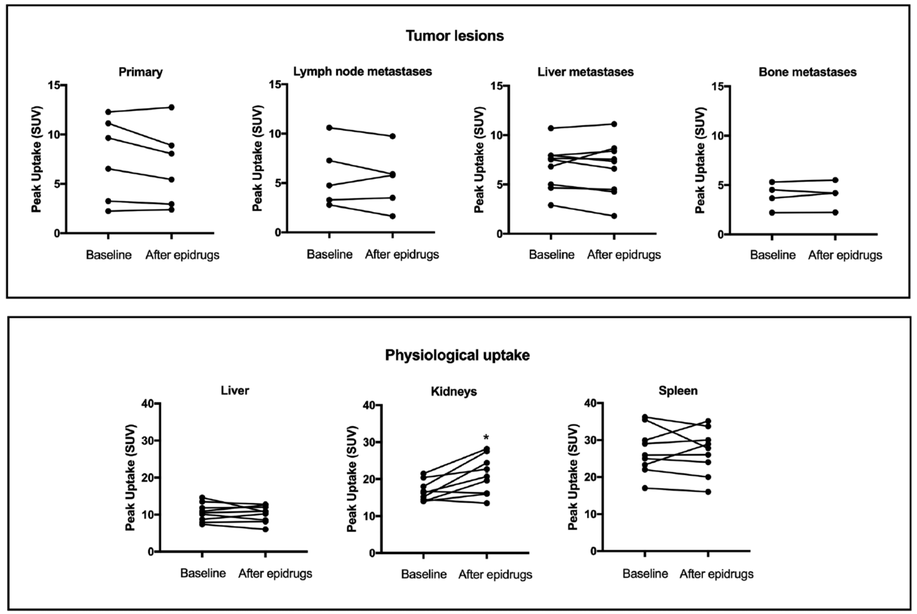
- Preclinical studies: Epigenetic drugs upregulate somatostatin receptor subtype 2 (SST_2) expression in neuroendocrine tumor (NET) models
- No data exists in NET patients with low SST expression so far

Methods:

- Prospective clinical proof-of-concept trial involving nine patients with advanced well-differentiated NETs with low SST expression
- Treatment for 14 days with the histone deacetylase (HDAC) inhibitor valproic acid and the DNA methyltransferase (DNMT) inhibitor hydralazine
- Primary outcome: change in tumor-uptake of ^{68}Ga-DOTATATE

Main findings:

- Epigenetic treatment with the HDAC inhibitor valproic acid and the DNMT inhibitor hydralazine did not lead to an increase in tumor-uptake of ^{68}Ga-DOTATATE
- An increase in renal uptake was observed.



Future Directions for Research:

- Clinical trials with alternative epigenetic drugs or in patients with positive baseline SST expression
- A potential increase in renal uptake should be closely monitored.

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Figure 1 Change in peak uptake of ^{68}Ga-DOTATATE on PET/CT at baseline and after 2-week epigenetic treatment. Upper panel: Changes in tumor lesions. Lower panel: Changes in physiological uptake. ≥ 2 tumor target lesions were defined on the initial ^{68}Ga-DOTATOC PET/CT. Peak standard uptake value (SUV) was calculated for every lesion, the liver, kidneys and spleen. *p < .05 according to Wilcoxon signed-rank test

Clin. Transl. Med. 2022;12:e957

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