

# Improved Survival in Stage IV NETs Treated with High Dose I-131 MIBG is Predicted by Response at Initial Follow-up and by Multiple Rounds of Therapy

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**Background:** Peptide receptor radionuclide therapy (PRRT) has promising activity in advanced somatostatin receptor (SSTR)-expressing neuroendocrine tumors (NETs); however, 20 % of NETs lack sufficient SSTR expression (1). An alternative is iodine-131-meta-iodobenzylguanidine (I131-MIBG), a radiolabeled norepinephrine analog that can be taken up by NETs, including some negative on somatostatin receptor scintigraphy.

**Methods:** We performed a retrospective review of the medical charts of all patients treated with I131-MIBG for NETs (excluding pheochromocytoma/ paraganglioma) at Duke University Hospital from 1991-2014 (n=211).

**Results:** Primary site: Unknown 39%, small bowel 32%, lung 10%, other 19%. Prior therapy: surgery 63%, radiation 10%, embolization 6%, chemotherapy 27%, SSA 72%. 81% received one treatment; the remainder received multiple treatments over their lifetime. At first follow up, 71% reported improvement in pre-treatment symptoms such as GI symptoms, fatigue, flushing, and pain. Median time to symptomatic progression was 1.4y  $\pm$  SE 0.3. Initial follow up imaging demonstrated 2% CR, 18% PR, 60% SD and 20% PD. Median TTP was 1.7y  $\pm$  0.2. Laboratory (CgA, 5HIAA) response: 34%; stable lab results: 48%; Median survival post treatment was 2.4y  $\pm$  0.2. Improved survival was predicted by: multiple MIBG treatments vs. one treatment; stable / response vs. progression at first imaging follow up; symptomatic response vs. non-response to MIBG; response / stability vs. progression in labs.

**Conclusion:** Response to I131-MIBG is associated with survival benefit for NETs.