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Role of 92 Gene Cancer Classifier Assay in Neuroendocrine Tumor of Unknown Primary

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BACKGROUND: Neuroendocrine tumor of unknown primary constitutes about 10-15 % of all neuroendocrine tumors. Identification of primary site can helps alter the management. Sunitinib is FDA approved for management of pancreatic neuroendocrine tumors, everolimus is approved for gastroenteropancreatic and bronchial NETs, immune checkpoint inhibitors are active in Merkel cell carcinoma and MIBG treatment is standard of care for pheochromocytoma.

METHODS: Patients with neuroendocrine tumor with unknown primary were identified from Markey Cancer Center database over a five-year period (2012-2016). Patient who underwent 92-gene reverse transcriptase polymerase chain reaction cancer classification assay (BioTheranostics Tissue Type ID) were analyzed.

Results: 56 patients with neuroendocrine tumors with unknown primary were identified. Median age of cohort was 61 years. 28/56 patients were males. 92 gene cancer ID assay was used in 38 out of 56 patients. Primary site of tumor was identified with >95% certainty in 36 out of 38 patients. The test reported Pancreatic NET as the primary site for 10 patients, gastrointestinal NETs for 14 patients, bronchial carcinoid for 5, large call NEC for 3, Merkel cell carcinoma for two and pheochromocytoma in one patient.

CONCLUSION: Tissue type ID was able to identify a primary site in NETs of unknown primary in majority (94.7%) of cases. The result had direct implication in management of patients with regards to FDA approved treatment options in 13/38 patients (PNETs, merkel cell and pheochromocytoma).