C-52

Nonfunctional Pancreatic Neuroendocrine Tumors: A Retrospective Review and Early Detection Facilitated by EUS and Novel CORE Biopsy Techniques

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BACKGROUND: Pancreatic neuroendocrine tumors (PNET) account for approximately 3% of all pancreatic cancers. “Non- functioning neuroendocrine tumors” (NF-PNET) produce vague symptoms with delayed diagnosis and poor prognosis.

METHODS: A retrospective chart review was conducted on all patients diagnosed with NF-PNETs at a large tertiary community hospital from 2013 to 2016. All patients were seen through the GI Oncology Program and underwent multi- disciplinary review of diagnosis, staging, and treatment planning.

RESULTS: This cohort of 13 patients with a total of 14 NF-PNETs. Eight underwent surgical resection; of which 7 are alive. Three patients were treated with chemotherapy; one is living at 15 months. Two patients declined surgery or chemotherapy and are currently under close surveillance. Tumor size ranged from 1.01cm to 16cm. 61.5 % ranged from 1-4cm. Endoscopic Ultrasound (EUS) allowed for the detection of lesions less than 2 cm that were not detected on high resolution CT scanning in 2 of the 13 patients. All lesions found on EUS were confirmed with novel EUS guided CORE biopsy rather than Fine Needle

Aspiration (FNA). All samples were stained for biomarkers to confirm diagnosis; 100% tested positive for chromogranin and synaptophysin.

CONCLUSION: The use of EUS for imaging and confirmation with CORE biopsy may account for the smaller size of lesions detected in this study. Earlier detection may improve long term survival. While radiological modalities, including CT, MRI, PET may detect an abnormal mass, EUS can inspect the pancreas with greater detail and enable earlier detection of lesions. EUS guided CORE biopsies – with the use of novel tissue acquisition needles can obtain large histologic samples to be stained for biomarkers, including chromogranin, synaptophysin, and Ki67. Early detection can improve survival which depend on various factors including tumor characteristics and resectability. Increased sensitivity of EUS and multidisciplinary review may improve detection, planning and treatment of PNETs.