# C-56

## Comparison of Patients with Small Bowel Neuroendocrine Tumor Liver Metastaseswith and without Carcinoid Syndrome: A Single Institutional Analysis

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**BACKGROUND:** Carcinoid syndrome is common in patients with small bowel neuroendocrine tumor liver metastases (NETLM) and associated with a spectrum of clinical symptoms. The role for surgery, liver-directed therapy (LDT), hormonal therapy, and peptide receptor radionucleotide therapy (PRRT) for these patients is evolving. We investigated the clinical characteristics and treatment modalities utilized for patients with small bowel NETLM with and without carcinoid syndrome.

**METHODS:** Clinicopathologic characteristics for patients who were diagnosed with metastatic small bowel NETLM from 1999-2019 were abstracted from a retrospective database at an academic medical center. Patients were stratified by presence of carcinoid syndrome (“non-carcinoid” vs. “carcinoid”). Demographics, treatments, pathologic characteristics, and overall survival (OS__) were compared among groups.

**RESULTS:** Of 82 patients with small bowel NETLM, 44 (53.7%) had carcinoid symptoms. Presentation with metastatic disease and presence of extrahepatic disease were similar. Patients underwent resection of primary (92.1% non-carcinoid vs. 84.1% carcinoid, p = 0.27) and hepatic resection (47.4% non-carcinoid vs. 54.5% carcinoid, p = 0.62) at similar rates. Of the patients who underwent primary resection, there was no difference in Ki-67 grade, mitotic grade, or nodal positivity. Utilization of LDT was similar (50.0% non-carcinoid vs. 54.5% carcinoid, p = 0.68), and more symptomatic patients received octreotide/lanreotide (81.6% non-carcinoid vs. 97.7% carcinoid, p = 0.01). Treatment with

PRRT was more common in symptomatic patients (2.6% non-carcinoid vs. 31.8% carcinoid, $p < 0.05$). Carcinoid heart disease was identified in 17 (38.6%) of carcinoid patients. While more symptomatic patients were deceased (3 non-carcinoid vs. 13 carcinoid, $p = 0.014$), median OS was similar (not estimable [non-carcinoid] vs. 192 months [carcinoid], $p = 0.146$).

**CONCLUSION:** Management of patients with small bowel NETLM is evolving and involves multiple treatment modalities. Presence of carcinoid syndrome may impact these decisions and should be taken into consideration with a multidisciplinary approach to care.

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