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Comparison of Hepatic Artery Embolization and Selective Internal Radiation Therapy for Metastatic Neuroendocrine Tumors

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Background: Liver-directed therapies can be beneficial in reducing morbidity and mortality in patients with metastatic neuroendocrine tumors (mNETs). We compared the clinical outcomes of patients treated with hepatic artery embolization/chemoembolization (HA(C)E) or selective internal radiation therapy (SIRT) with SIR-Spheres at our institution over the last ten years.

Methods: Medical records of 42 mNET patients with hepatic metastases treated with either bland hepatic artery embolization (HAE),

chemoembolization (HACE), or SIRT at the University of Iowa from 2001 to 2011 were analyzed. Chi-square and Wilcoxon rank-sum tests were performed to compare the groups. Time to progression (TTP) and overall survival (OS) were calculated using Kaplain-Meier analysis.

Results: The tumors were located in the small bowel in 21 patients (50%), pancreas in 8 (19%), lung in 2 (5%), and other locations in 11 patients (26%). Ten patients (24%) had extra-hepatic metastases. 13 patients had HAE, 17 patients had HACE and 12 patients had SIRT. 20 of these patients had a second procedure with 6 receiving SIRT, 9 HAE and 5 HACE. TTP was similar between SIRT (15.1 months) and HAE or HACE (19.6 months) (p= 0.968). There was a trend towards an increased TTP in patients receiving HACE (33.4 months), compared to HAE (12.1 months) or SIRT (15.1 months) (p = 0.512). The overall survival for all patients from the first intervention was 41.9 months.

Conclusion: There appears to be no significant difference in TTP in patients treated with SIRT compared to patients treated with HAE or HACE in this cohort; however, there may be a trend towards a longer time to disease progression in patients treated with chemoembolization compared to the other two modalities. Patients tend to have a prolonged survival after all three liver-directed therapies.