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Long-term Outcomes Following ^{90}YRadioembolization of Neuroendocrine Liver Metastases

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BACKGROUND: ^{90}Y radioembolization has been studied as an effective therapy for neuroendocrine liver metastases (NELM). We aim to further characterize treatment outcomes as it relates to the primary lesion location.

METHODS: 170 patients with NELM were enrolled in the Radiation-Emitting SIR-Spheres in Non-Resectable liver tumor (RESiN) registry (NCT 02685631). Before 90Y, 23 (14%) patients had hepatic resection, 118 (83%) were on octreotide, and 47 (33%), and 57 (40%) received biologic or cytotoxic therapy. 62 patients (36%) had previous arterial embolization. 76 patients had extrahepatic disease. 86 were ECOG 1 or more. Tumor grade was known in 81 (48%): 57 well-, 12 moderate- and 12 poorly differentiated. Kaplan-Meier analysis and log rank tests compared overall survival (OS) by tumor location: foregut (FG, n=39), midgut (MG, n=54), hindgut (HG, n=10), pancreas (P, n=36) and unknown (U, n=13). Toxicities were reported using Common Terminology Criteria for Adverse Events v.5.

RESULTS: 80 patients (47%) underwent bilobar treatment and 90 (53%) had unilobar. Median tumor burden was 26% (IQR: 11.8-49.7). 1, 2, and 3-year OS was 75%, 61% and 44%. Median OS was 30 months. Longest OS was pancreas and hindgut tumors (42 and 41 months, respectively) while the shortest OS was

in foregut primaries (25 months). This difference was not statistically significant (X2=6.1, p=0.2). Well-differentiated tumors had a median OS of 35 months, compared to 13 and 25 months for moderate and poorly differentiated tumors. There were no grade 4 or 5 toxicities. Most common grade 3 toxicities were bilirubin increase (n=10, 5.9%) and new ascites (n=3, 1.8%).

CONCLUSION: In a heavily pre-treated population with a high incidence of extrahepatic disease and limited performance status, ^{90}Y was effective and safe in treatment of NELM, with median OS of 35 months for well differentiated tumors. Grade 3+ hepatic toxicity was identified in <6% of patients.

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