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Surgical Management of Neuroendocrine Tumors Metastatic to the Liver

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Background: Neuroendocrine tumors (NET) frequently metastasize to the liver. Aggressive management of metastatic disease has been advocated due to the indolent course of NET. We sought to evaluate factors affecting survival in surgically treated hepatic metastases from NET.

Methods: Clinicopathologic data was retrospectively gathered from the records of 34 patients at our center who underwent liver surgery for NET. Chi-square and Analysis of Variances was performed to test differences between groups. Survival was assessed using Kaplan-Meier analysis.

Results: Median survival of the entire sample was 70.7 months. Resection alone was performed in 68%, and 32% had resection coupled with RFA. Liver disease was synchronous with the primary in 68%, and bilobar in 85% of patients. There was no difference in survival based on primary site (p=0.53), tumor histology (p=0.66), or synchronicity (p=0.48). R0/R1 resection was achieved in 65%. There was no significant difference in survival comparing R0/R1 (87 months; 95% CI 10-164 months) and R2 resections (71 months; 95% CI 32-108 months; p=0.65). Recurrence occurred in 41% of patients undergoing R0 or R1 resection in a mean of 23.8 months, with no difference in time to recurrence between R0 and R1 resection (p=0.73). Patients 51-69 years old had the best survival (115 months; 95% CI 26-204 months) followed by those <51 (31 months; 95% CI 15-137 months) and those >69 (39 months; 95% CI 15-64 months; p=0.04).

Conclusions: Surgical resection of NET hepatic metastases may result in long term survival. Long term survival was only influenced by age at resection. In those achieving R0 and R1 status, positive microscopic margins did not adversely affect survival, suggesting that surgical debulking may have a positive effect on survival. Our cohort and survival data underscores the need for a multicenter investigation of NET surgical management.