

C15

Is Patient Age Associated with Improved Survival after Transarterial Chemoembolization (TACE) for Unresectable Neuroendocrine Tumor (NET) Metastasis?

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Objective: To review our experience with TACE in patients with unresectable hepatic metastatic NET and evaluate if age, number of TACE cycles, site of primary tumor and gender were associated with improved survival.

Background: NETs are rare, slow-growing tumors that often metastasize to the liver. Most patients present with unresectable disease due to multifocal, bilobar liver metastases. Systemic chemotherapy is ineffective in this population.

Methods: 102 patients with unresectable metastatic NET were evaluated at our center and underwent TACE therapy (1990-2009). We evaluated their pre-operative and treatment characteristics and overall survival.

Results: Median age was 61 years (range, 19 - 86) with 52% female. Primary tumor location included: pancreas (41%), small bowel (26%), lung (5%), and unknown (28%). Symptoms were present in 71% of patients and included diarrhea (42%), abdominal cramping (29%), weight loss (29%), flushing (25%), palpitations (3%), rash (2%), and peripheral edema (2%). Median number of TACE treatments were 5 with patients receiving adriamycin (59%) and/or streptozocin (36%). TACE was performed every 2 months based on radiographic response. Of the 102 patients, 62% of patients had died by the time of analysis. Kaplan-Meier survival analysis revealed the median survival after TACE treatment was 32.6 mos (95% CI= 18.9 - 46.3 mos). Patients who were younger (≤ 50 yrs) were found to have significantly longer survival (median survival 86.3 mos) compared to the patients who were older (> 50 yrs; median survival 31 mos; $p=0.05$). After adjusting for gender, primary site, and number of treatments using Cox regression analysis, age significantly contributed to overall survival ($p=0.01$).

Conclusion: Liver-directed TACE therapy provides a viable treatment option for patients with unresectable liver metastatic NET with the best survival results seen in young patients.