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TACE or TARE? Chronic Hepatotoxicity in Patients with Metastatic Neuroendocrine Tumor

Brian Currie¹; Gregory Nadolski¹; Jeffrey Mondschein¹; Mandeep Dagli¹; Deepak Sudheendra¹; S. William Stavropoulos¹; Michael Soulen¹

¹Hospital of the University of Pennsylvania

BACKGROUND: The understanding of long-term hepatotoxicity from transarterial chemoembolization (TACE) and transarterial radioembolization (TARE) is evolving. We compared the manifestations of liver injury following TACE and TARE in patients with neuroendocrine tumor (NET).

METHODS: IRB-approved single-institution retrospective analysis of all NET patients receiving TACE from 2006-2016 and TARE from 2005-2014 and surviving at least one year from the initial treatment. Patients receiving only TACE (n=63) or TARE (n=28) were evaluated for the presence or absence of durable hepatic toxicities occurring at least 6 months after the initial treatment. The definition and grading of liver injury was adapted from the Common Terminology Criteria for Adverse Events Version 4.0 and was characterized by the presence of Grade 3 or above laboratory or clinical toxicities.

RESULTS: Chronic hepatic toxicity occurred in 22% (14/63) of TACE patients with a total of 26 Grade 3-4 events, with elevation of bilirubin being the most common, compared to 29% (8/28) of TARE patients with 16 Grade 3-4 and 2 Grade 5 events, with ascites being the most frequent. There were more laboratory toxicities in the TACE group (65% vs. 38% of recorded toxicities, $p = 0.11$) and fewer Grade 4-5 injuries (6% vs. 27% of patients, $p = 0.06$). There were no significant differences in the number of patients receiving hepatotoxic chemotherapy (6% vs. 7%, $p > 0.99$), but patients undergoing TACE received more treatments (2.5 vs. 2, $p = 0.07$). There was also a significantly higher number of patients experiencing intrahepatic progression of disease in the TACE cohort compared to TARE (75% vs. 43%, $p = 0.005$).

CONCLUSION: Delayed hepatotoxicity from TACE and TARE occurred in 22% and 29% of patients, respectively, 6 months to several years following treatment. TACE-related toxicities on average were less severe and manifested primarily as laboratory derangements, compared to TARE which consisted of clinical abnormalities.