

Outcomes after transarterial embolization versus radioembolization of neuroendocrine tumor liver metastases

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Note: This is an updated version of the abstract.

Purpose: To evaluate initial response and overall survival (OS) of neuroendocrine tumor (NET) liver metastases initially treated with transarterial embolization (TAE) versus radioembolization (RE).

Methods: A retrospective review was performed of 186 patients with NET liver metastases initially treated with TAE ($n=160$) versus RE ($n=26$). For each patient, we evaluated: initial response by mRECIST, overall survival, primary site, tumor grade and degree of differentiation, comorbidities, Child Pugh score, performance status, presence of extrahepatic tumor, volume of liver disease, presence of NET-related symptoms, arteriovenous shunting, degree of selectivity of the embolization, and TAE particle size.

Results: There was no difference in initial response for NET treated with TAE versus RE (53% vs 59% CR or PR, $p=0.66$). Initial response was higher for TAE using particles $<100\ \mu\text{m}$ versus TAE using only particles $\geq 100\ \mu\text{m}$ (64% vs 42%, $p=0.007$). Multivariate logistic regression showed that use of particles $<100\ \mu\text{m}$, and liver $<50\%$ replaced with tumor were independent predictors of a better initial response rate. For well to moderately differentiated NET, median OS after initial locoregional therapy was 55 months for both TAE and RE ($p=0.91$). For poorly differentiated or undifferentiated NET, median OS after initial locoregional therapy was 13 months for TAE and 5 months for RE ($p=0.076$). There was no significant difference in survival between TAE patients treated with $<100\ \mu\text{m}$ versus only $\geq 100\ \mu\text{m}$ particles. Multivariate Cox proportional hazards model showed that well to moderately differentiated NET, and liver $<50\%$ replaced by tumor were the only independent predictors of improved OS.

Conclusion: NET patients treated with TAE have the same initial response and overall survival, compared to RE. NET patients treated with TAE using particles $<100\ \mu\text{m}$ had better initial response, but the same overall survival, compared to TAE using only particles $\geq 100\ \mu\text{m}$.

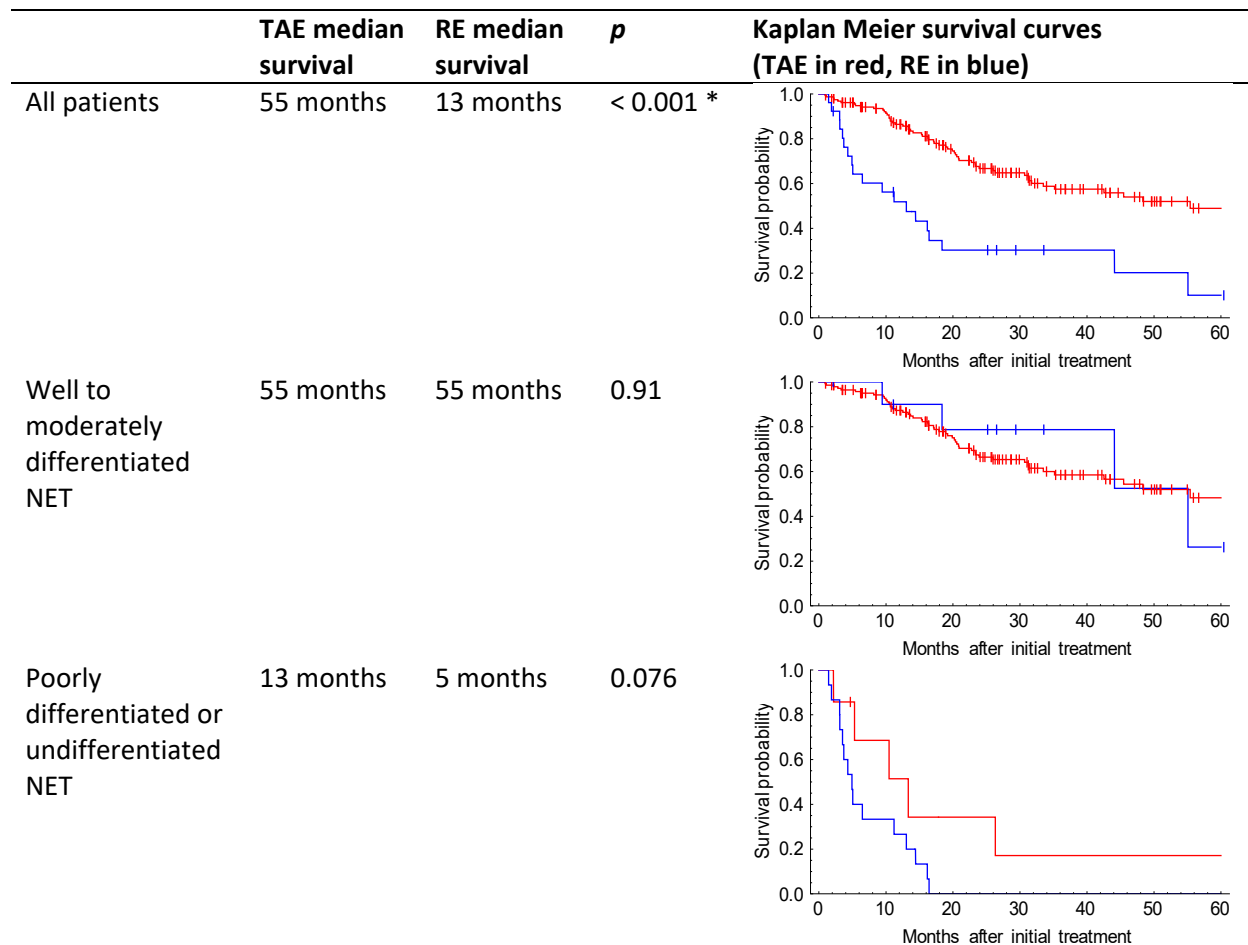


Figure 1. Overall survival after initial TAE or RE of NET liver metastases. * = statistically significant difference.

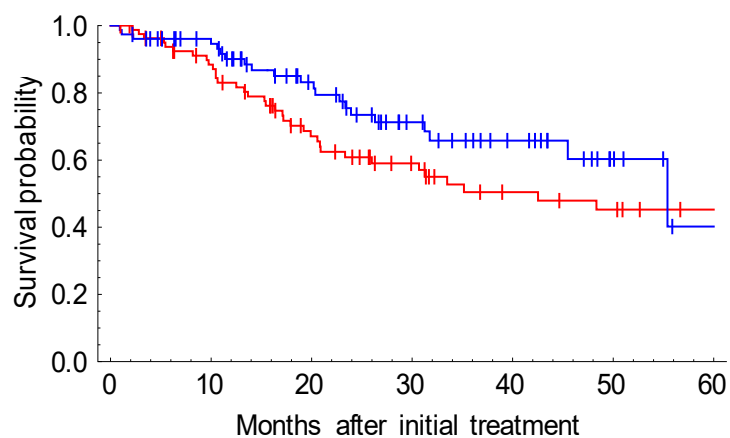


Figure 2. Overall survival after initial TAE performed using < 100 μm particles (blue curve, 55 month median survival), versus only using ≥ 100 μm particles (red curve, 43 month median survival), $p=0.11$.