Curative treatment after radioembolization is associated with better outcomes in patients with HCC

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Background/Aims: Transarterial radioembolization (TARE) is one therapeutic option for hepatocellular carcinoma (HCC). We investigated predictors and prognostic value of achieving curative treatments after TARE. **Methods:** A total of 143 patients with intrahepatic HCC treated with TARE between 2011 and 2017 were recruited from two Korean tertiary institutes. Subsequent curative treatment was decided according to the physician's decision. **Results:** The median age of the study population (115 males and 28 females) was 65.0 years. Twenty-seven (18.9%) patients received curative treatments (resection in 16, transplantation in 9, and ablation in 2) after TARE, who were likely to be younger (median 58.5 vs. 69.2 years) and less likely to have hypertension (40.7% vs. 62.9%) than those without curative treatments (all $p<0.05$). On multivariate analysis, younger age (< 65 years) (hazard ratio [HR]=9.295, $p<0.001$) and AFP $\leq$ 200 ng/mL (HR=4.246, $p=0.017$) independently predicted the increased probability of achieving curative treatment after TARE. Curative treatment after TARE (HR=0.089, $p=0.023$), tumor burden > 50% (HR=5.690, $p=0.003$), portal vein thrombosis (HR=5.635, $p=0.002$), and progressive disease by modified response evaluation criteria in solid tumors (mRECIST) criteria at 3 months after TARE (HR=9.875, $p<0.001$) independently predicted the risk of mortality. The cumulative survival rate of patients with curative treatment was significantly higher than that of patients without ($p<0.001$ by log-rank test). **Conclusions:** Younger age and AFP $\leq$ 200 ng/mL independently predicted the increased probability of achieving curative treatment after TARE and curative treatment after TARE provided a survival benefit in patients with intrahepatic HCC.

Table. Independent predictors of achieving curative treatment after TARE.

Baseline variables	Univariate			Multivariate		
	Hazard ratio	95% CI	P value	Hazard ratio	95% CI	P value
Age < 65 years	4.461	1.677-11.869	0.003	9.295	2.859-30.221	<0.001
AFP $\leq$ 200 ng/mL	3.750	1.411-9.968	0.008	4.246	1.294-13.935	0.017
Multiple tumors	0.436	0.177-1.075	0.071	0.380	0.119-1.211	0.102
BCLC stage C	0.356	0.019-1.162	0.087	0.484	0.115-2.044	0.323
Progressive disease by mRECIST criteria at 3 months	0.155	0.020-1.211	0.076	0.166	0.018-1.519	0.112

Variables are expressed as median (interquartile range) or n (%).

CI, confidence interval; TARE, trans-arterial radioembolization; AFP, alpha-fetoprotein; DCP, des-gamma-carboxyprothrombin; MELD, model for end-stage liver disease; BCLC, Bacrcelona Clinic Liver Cancer; mRECIST, modified Response Evaluation Criteria in Solid Tumors.