

UTILITY OF PRE AND POST TREATMENT ALPHA-FETOPROTEIN IN THE PROGNOSIS OF HEPATOCELLULAR CARCINOMA TREATED WITH ULTRASOUND-GUIDED PERCUTANEOUS RADIOFREQUENCY ABLATION

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Significance: Post-treatment alpha-fetoprotein (AFP) response has been reported to be associated with prognosis of hepatocellular carcinoma (HCC). We aimed to determine whether pre- and post-treatment AFP are associated with survival for HCC patients undergoing radiofrequency ablation (RFA).

Methodology: RFA was performed on 166 index HCC patients from 2007 to 2018. Post-treatment AFP was monitored at 1-,3- and 6-months and percentage AFP response was computed from pre-treatment AFP. Overall Survival (OS) was estimated using Kaplan-Meier; log-rank and Cox regression analysis of predictors were analyzed.

Results: Pre-treatment AFP levels ≥ 10 ng/ml, ≥ 100 ng/ml and ≥ 1000 ng/ml were observed in 55.1% (92/166), 31.1%(52/166) and 9.6%(16/166), respectively. Patients with pre-treatment AFP ≥ 10 ng/ml had poorer OS compared to AFP < 10 ng/ml (1-,3- and 5-year: 77.3%,50.7%,23.3% vs 93.1%,70.1%,42.2%; $p=0.003$). In those with normal post-treatment AFP, AFP response $\geq 50\%$ at 6 months was a predictor of OS (1-,3- and 5-year: 96.4%,84.4%,62.8%; $p=0.014$). In those with high post-treatment AFP, AFP response $\geq 50\%$ at 1 month ($p=0.009$) and 3 months ($p=0.002$) were predictors of OS. Furthermore, normal AFP at any time during 1-,3- or 6-months post treatment with RFA were associated with better OS ($p<0.001$). When pre- and post-treatment AFP were analyzed, pre-treatment AFP < 10 ng/ml and post-treatment AFP response $\geq 50\%$ at 1 month yielded the best estimated 5-year survival ($p=0.002$).

Conclusion: Pre-treatment AFP < 10 ng/ml, 6-months post-treatment AFP response $\geq 50\%$ with normal AFP and 1- and 3-months post-treatment AFP response $\geq 50\%$ with high AFP were predictors of better OS. AFP < 10 ng/mL at any time during 1-,3- or 6-months after RFA was an important predictor of better prognosis. The best prognosticator for OS was a patient with pre-treatment AFP < 10 ng/ml and post-treatment AFP response $\geq 50\%$ at 1 month.

Keywords: retrospective, alpha-fetoprotein, AFP, survival, prognosis, radiofrequency ablation, hepatocellular carcinoma

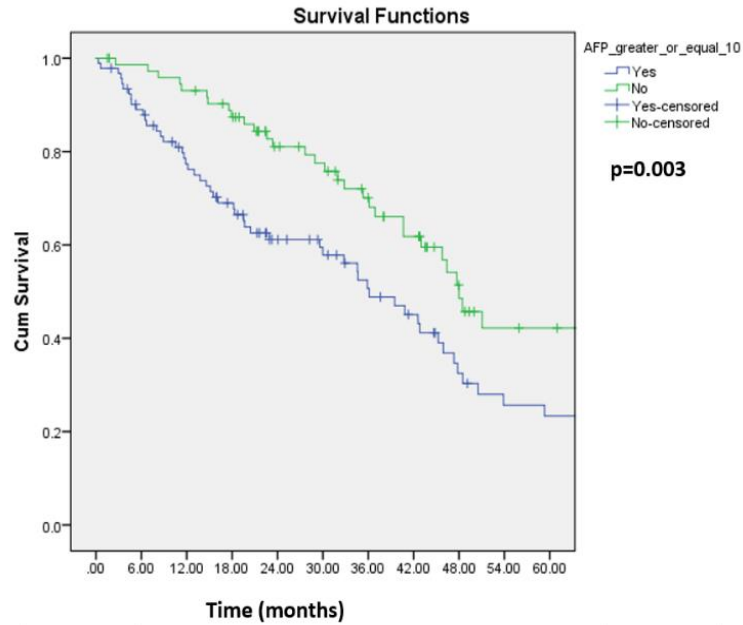


Figure 1. Kaplan–Meier curve for overall survival of HCC patients based on pre-treatment AFP ≥ 10 ng/ml

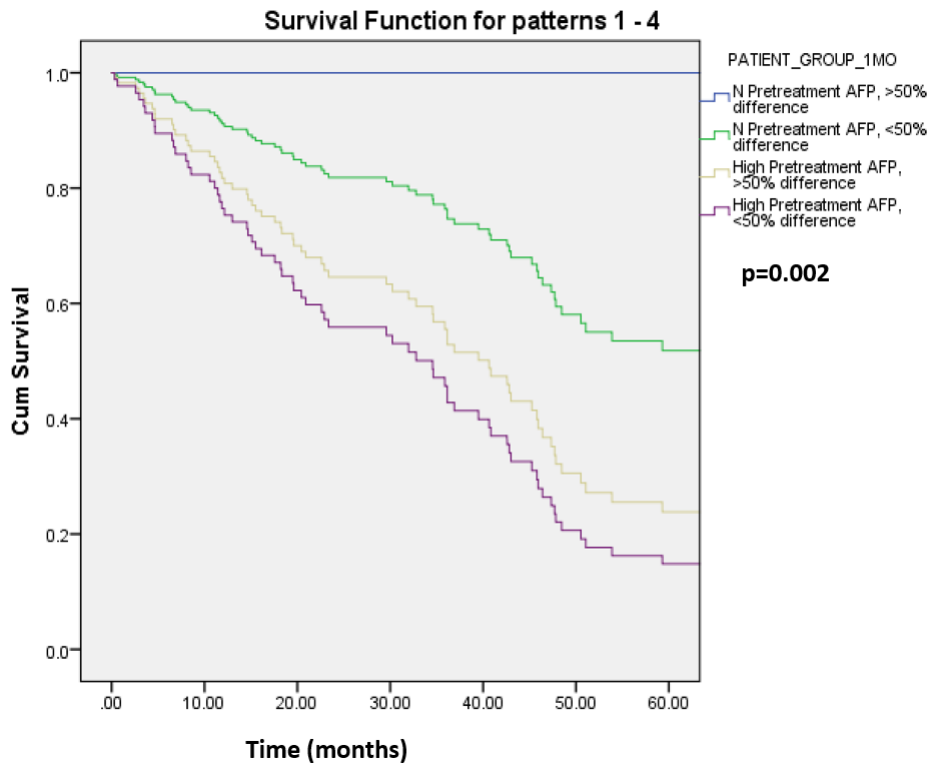


Figure 3. Kaplan–Meier curve for overall survival of HCC patients based on pre-treatment AFP and post-treatment AFP response $\geq 50\%$ at 1-month after RFA