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**Evaluation of Tumor Response Using Alpha-fetoprotein and Des-gamma-carboxy Prothrombin in Hepatocellular Carcinoma Patients Who Underwent Transarterial Chemoembolization**

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**Abstract**

*Introduction:* The aim of the study is to evaluate the role of alpha-fetoprotein (AFP) and des-γ-carboxy prothrombin (DCP) in the assessment of treatment response at one month in patients with hepatocellular carcinoma (HCC) treated with trans-arterial chemoembolization (TACE).

*Methods:* From March 2016 to April 2017 a number of 59 patients diagnosed with HCC were prospectively enrolled. A TACE procedure as initial treatment modality was performed in 41 patients. AFP and DCP serum levels were measured and clinical features were determined for all the patients that were included. The Wilcoxon rank test was used to compare variables at baseline and at one month after the procedure.

*Results:* Treatment was performed in 86.4% of the patients diagnosed with HCC, 27 patients received a classical TACE procedure, 14 patients were treated with DEB-TACE, radiofrequency ablation was performed in 3 patients and 4 patients received a liver transplant as initial treatment. Systemic therapy with Sorafenib was started in 3 patients (5%) and in 8 cases no treatment was performed. AFP value significantly decreased at one month in patients that underwent TACE therapy (median value 240.3 vs. 123.7 ng/mL, p=0.020). The same significant decrease was noted for DCP values (median value 1376.8 vs. 769 mAU/mL, p=0.0033). Both AFP (85.5 vs. 18.7 ng/mL, p=0.035) and DCP values (693.2 vs. 58.2 ng/mL, p=0.0003) were significantly lower only in subjects who achieved complete response after TACE and not in patients with partial response. In patients treated with TACE therapy, there was a down-sizing of the maximum diameter of the tumor nodule (30 vs. 27 mm, p=0.02).

*Conclusion:* There was a significant decrease of AFP and DCP values after complete response in HCC patients treated with TACE. DCP is a more effective tumor marker in predicting response than AFP, with no benefit found in their combination.

**Key words:** alpha-fetoprotein, des-gamma-carboxy-prothrombin, transarterial chemoembolization, tumor marker response, hepatocellular carcinoma