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## Predictive factors that determine response to trans-arterial chemoembolization in patients with hepatocellular carcinoma

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**Introduction & Aim:** Hepatocellular carcinoma is one of the leading causes of cancer deaths worldwide. Transarterial Chemoembolization (TACE) is a standard therapy for intermediate stage of liver cancer. It is associated with higher survival than supportive care. However, it may have a risk of mortality and morbidity. Many factors other than radiological response determine TACE outcomes. The aim is to analyze the outcomes after TACE comparing with different radiological responses.

**Method:** 62 patients who underwent transarterial chemoembolization were subjected to clinical examination, laboratory investigations, triphasic abdominal CT with contrast and evaluation of Child Pugh Score, model for end stage liver disease and Barcelona Clinic Liver Cancer staging before and one month after therapy. Tumor response according to modified response evaluation criteria in solid tumors was calculated by one radiologist. Patients were followed up for six months or till death. Statistical analysis including regression and survival analysis were performed.

**Result:** Study was carried out on 62 Egyptian patients over a two-year period between July 2014 and July 2016. These patients had hepatocellular carcinoma and underwent transarterial chemoembolization (TACE). In regard to modified response criteria in solid tumors: 25 patients (40.3%) showed complete response, 15 patients (24.2%) showed partial response, 2 patients (3.2%) showed stable disease and 20 patients (32.3%) showed progressive disease. As regard decompensation after TACE (which was considered as increase Child Pugh score one or more than the score before TACE), 36 patients (58%) had decompensation and 26 patients (42%) did not. As regard 6-month survival, 11 (17.7%) of 62 patients died within 6 months follow up after TACE. The cumulative proportion of surviving was 82%. Significant difference was detected in patients with different radiological responses as regard tumor criteria (size, invasion of portal vein, Barcelona Clinic Liver Cancer stage and technique of TACE (super selective and selective). Size of lesions (two dimensions) (40.87 cm<sup>2</sup>) is predictive of progressive disease with sensitivity 55%, specificity 83.3% and positive predictive value-61.1%. High Child Pugh score, left lobe tumors, heterogenous enhanced lesions, serum bilirubin: Cut-off value=1.45 mg/dl, sensitivity=38.9%, specificity=88.5% and positive predictive value=82%, AST level: Cut off value=77.5 IU/L, sensitivity=36.1%, specificity=96.2% and positive predictive value=93%, INR cut off value=1.2, sensitivity=61.1%, specificity=92.3% and positive predictive value=92%, Model for End-Stage Liver Disease (MELD) cut-off value=8.5, sensitivity=80.6%, specificity=73.1% and positive predictive value=80.6% and low platelet count cut off value 80×10<sup>9</sup>/L, sensitivity=33.3%, specificity=96.2% and positive predictive value=92.3% were detected to be associated with decompensation after TACE. High serum bilirubin, INR, MELD score, and alpha-fetoprotein, low platelet count and progressive tumor response were detected to be negatively affecting 6-month survival.

**Conclusion:** Radiological response cannot be considered alone to determine the outcome after transarterial chemoembolization. Child-Pugh score, tumor criteria, liver functions and platelet count also affect the prognosis after TACE.

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