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International
Cancer Study & Therapy Conference

April 4-6, 2016 Baltimore, USA

Systemic immune-inflammation index predicts outcome of patients with advanceed hepatocellular carcinoma treated with sorafenib

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We evaluated a systemic immune-inflammation index (SII) based on lymphocyte, neutrophil and platelet counts and explored its prognostic value in patients with advanced hepatocellular carcinoma treated with sorafenib. Neutrophils promote the secretion of circulating growth factors such as VEGF and proteases, while lymphocytes play a crucial role in tumor defense by inducing cytotoxic cell death and inhibiting tumor cell proliferation and migration, thereby dictating the host's immune response to malignancy. Several inflammation and immune-based prognostic scores have been developed to predict survival and recurrence, *e.g.* lymphocyte count, neutrophil-lymphocyte ratio (NLR), and platelet-lymphocyte ratio.

Experimental Design: Ninety-seven patients with advanced hepatocellular carcinoma (HCC) receiving sorafenib were available for our analysis. Lymphocyte, neutrophil and platelet counts were measured before the beginning of treatment. Prediction accuracy was evaluated by receiver operating characteristic analysis (ROC).

Results: An optimal cutoff of 360 for the SII stratified patients into high (≥360) or low SII (<360) groups in the training cohort. Univariate and multivariate analyses revealed that SII was an independent predictor of overall survival and relapse-free survival, and a prognostic marker for advanced HCC patients treated with sorafenib. Patients with SII < 360 had a better outcome than those with SII > 360; median PFS 3.9 months (95%CI 2.8-6.2) vs. 2.6 months (95%CI 1.8-3.3) (p 0.026) and median OS 13.9 months (95%CI 5.7-22.8) vs. 5.6 months (95%CI 3.2-10.4) (p=0.024), respectively.

Conclusion: In our study, the SII was a powerful prognostic indicator of poor outcome in patients with advanced HCC treated with sorafenib. The fact that it is calculated from the results of a routine blood test makes it a potentially useful strategy to assess prognosis in patients with advanced HCC.