

Prognostic Impact Of Serum Soluble PD-1 And ADV Score For Living Donor Liver Transplantation In Patients With Previously Untreated Hepatocellular Carcinoma

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Background : The programmed death protein 1 (PD-1) pathway is the critical mechanism in development of hepatocellular carcinoma (HCC). The present study analyzed the prognostic impact of pretransplant serum soluble PD-1 (sPD-1) concentration and α -fetoprotein-des- γ -carboxyprothrombin-tumor volume (ADV) score in patients with previously untreated HCC undergone liver transplantation (LT).

Methods : This retrospective single-center study enrolled 100 patients with HCC who underwent living donor LT from 2010 to 2016. Concentrations of sPD-1 were measured in stored serum samples.

Results : Receiver operating characteristic curve analysis of 2-year tumor recurrence resulted in an sPD-1 cutoff of 177.1 μ g/mL, which was associated with higher rates of tumor recurrence ($p = 0.022$), but not with overall patient survival ($p = 0.460$). The derived cutoff for pretransplant ADV score was 5.4log, which was associated with higher tumor recurrence rate ($p < 0.001$) and lower overall patient survival rate ($p < 0.001$). Both sPD-1 $> 177.1 \mu$ g/mL (hazard ratio [HR] = 2.26, $p = 0.020$) and pretransplant ADV score $> 5.4\log$ (HR = 3.56, $p < 0.001$) were independent risk factors for post-transplant HCC recurrence. The combination of these two factors enabled the stratification of patients into three groups, with groups having 0, 1 and 2 risk factors differing significantly in the prognosis of tumor recurrence ($p < 0.001$) and overall patient survival ($p = 0.006$).

Conclusions : Both sPD-1 concentration and ADV score have prognostic impacts in patients who underwent LT for untreated HCCs. These factors, both individually and combined, can help in predicting post-transplant prognosis.

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