A single centre experience of the prognostic variables in hepatocellular carcinoma (HCC) patients treated with transarterial chemoembolization

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Introduction: Hepatocellular carcinoma (HCC) is the sixth most common cancer and second leading cause of cancer related mortality world-wide. TACE is the standard of care for patients with intermediate stage HCC with variable clinical benefits and debatable indications. Various assessment tools have been proposed to predict the overall survival (OS) following loco-regional therapies. The hepatoma arterial-embolization prognostic (HAP) score has been proposed as a prognostic tool for patients undergoing TACE.

Methods: A retrospective study was undertaken of 431 patients with compensated cirrhosis with HCC who underwent TACE at the Liver Centre in Kings College Hospital, United Kingdom between 2005 and 2012. Serum albumin, serum total bilirubin, alpha-fetoprotein and size of dominant tumour were selected as predictors of mortality following TACE. The HAP score was calculated by assigning one point each for albumin <36 g/dl, bilirubin >17 µmol/l, AFP >400 ng/ml or size >7 cm. Patients were divided into four risk groups based on their HAP scores; HAP A, B, C and D (scores 0, 1, 2 and >2, respectively). Further independent variables including the presence of portal vein tumour thrombosis (PVTT) were investigated. PVTT was classified as group 1 (tumour thrombi involving the main PV trunk), group 2 (thrombi in left or right PV) and group 3 (thrombi in segmental branch of PV).

Results: The mean age of the study population was 60.8 years. Viral aetiology of HCC accounted for 44% (113 for hepatitis C, 83 for hepatitis B). The median OS for groups A, B, C and D were 39.8 months (m) (CI 25.6-53.6), 24.6m (95% CI 17.1 to 31.4), 18.8m (CI 15.1-22.5) and 9.3 m (CI 7.6-11.0) respectively (log-rank test, all p < 0.005). PFS was 30.3m, 19.5m, 15.0m, and 6.2m for HAP score A, B, C, D respectively (p < 0.005). Additional independent variables were also analysed as predictors for OS. Univariate analysis revealed PV involvement was also prognostic for survival. 64 patients had PV involvement (median OS 7.7m [CI 5.4-10.02] compared to no PV involvement, (median OS 23.7m [CI 19.8-27.4, p < 0.005). On multivariate analysis together with the components of the HAP score, PV involvement remained significant (HR 1.94 p = <0.005). There were no differences in OS for the types of PVTT (group 1 [N = 11] = 6.4m [95% CI 2.3-10.5m], group 2 [N = 32] =7.7m [95% CI 3.9-11.4] and group 3 [N = 24] =9.9m [95% CI 6.4-13.4] [p = 0.95]).

Conclusion: There was a trend to longer survival with lower HAP scores. However the presence of PVTT can also identify patients with poorer prognoses in whom there is no clear survival advantage of TACE. Further randomised studies stratified by PVTT group are required to define optimal management in these patients.