

Analysis of HCC incidence among HBV- and HCV-related liver transplant recipients and comparison by HOMA-IR index: Single center study

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Introduction: HBV-associated liver disease has represented an important indication for liver transplantation (LT) (5–10% in Europe and the United States over the last 20 years. Chronic HCV infection is the leading cause for the development of liver fibrosis, cirrhosis, hepatocellular carcinoma (HCC) and is the primary cause for liver transplantation in the western world. HCV infection increases the risk of HCC by 14- to 22-fold when compared with HCV-negative patients. Insulin resistance plays an important role in the development of various complications associated with HCV infection. Recent evidence indicates that HCV associated insulin resistance may result in hepatic fibrosis, steatosis, HCC and resistance to anti-viral treatment. Ten-to-15% of NASH patients develop inflammation and fibrosis, which may eventually progress to cirrhosis and hepatocellular carcinoma (HCC). Metabolic syndrome (obesity, diabetes mellitus, and insulin resistance) is known to be one of the risk factors for development of HCC. Well-defined pathophysiological mechanisms linking obesity, diabetes and HCC have been described. The purpose of this study is to investigate whether HCC incidence in HBV and HCV patients varies according to BMI and HOMA-IR values.

Materials and methods: Between 2004 and 2018, cases of 878 liver transplant recipients were retrospectively reviewed. Data collection included demographic variables, MELD scores, BMI, HOMA IR, and presence of HCC. Adherence to Milan criteria, as determined at the time of listing for transplantation and assessed by pre-operative radiological imaging [computed tomography (CT) scan, ultrasound (US) and magnetic resonance imaging], was also noted. Tumor characteristics were established using explant histopathology: histological grade of the tumour (2 and less versus more than 2), the number of tumors (3 and less versus more than 3), total tumour size (less than 5 cm versus 5 cm and larger) and presence of micro-vascular invasion. For comparison between groups, chi-squared test, Fisher exact test, Student's t-test were used, as appropriate. P-value of < 0.05 was considered statistically significant. A total of 468 patients had a viral infection (HBV or HCV) were

included in the study. These patients were divided into two groups according to viral etiology [HBV (Group A) or HCV (Group B)].

Results: Between 2004 and 2018, cases of 878 liver transplant recipients were retrospectively reviewed. Chronic hepatitis B infection (HBV) with a rate of 37% was the leading cause of LT in the overall cohort, followed by HCV (11%), alcoholic liver disease (9.5%) and NASH (7.5 %). A total of 465 patients were included in the study. There were 361 patients in Group A and 114 patients in Group B. The mean age of the patients was 55.7 ± 7 years in Group A and 47.31 ± 10.97 years in Group B. In terms of BMI [26.9 (17.9-41) in Group A, 27.1(18.5-41.9) in Group B] were slightly higher in group B ($p=0.038$). HOMA IR was significantly higher in Group B [5.2 (0.6-36) in Group A, 4.2 (0.2-85.0) in Group B] ($p=0.001$). Presence of HCC was similar: 38% in Group A and 37 % in Group B ($p>0.05$).

Conclusion: HBV and HCV are important risk factors in development of HCC. Our study revealed similar HCC occurrence in both HBV and HCV patients. HOMA IR and BMI values, however, were significantly higher in patients with HCV as compared to HBV patients.

Speaker Biography

Ayfer Serin is an Internal Medicine Specialist and Gastroenterologist. She graduated from Trakya University School of Medicine in 1995. Between 1998 and 2002 she completed her residency in gastroenterology at Dokuz Eylul University and from 2006 to 2011, she served as a specialist in gastroenterology in several leading government and University Hospitals in Turkey. From 2011 to 2016 she worked as a faculty physician at Ege University School of Medicine. In 2014, she gained experience as an observer at Johns Hopkins University Hospital, Liver Transplantation Department. Since 2016, she has been working at Şişli Florence Nigthingale Hospital Liver Transplantation Unit as a gastroenterologist and hepatologist. Her primary interests include liver diseases, viral hepatitis B and C diseases, liver cirrhosis, liver neoplasms, NASH, liver transplantation, living-donor evaluation, preparation and treatment.

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