

Racial disparities in hepatocellular carcinoma (HCC) recurrence after liver transplant in the US

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Objective

This study aimed to assess racial disparities in Hepatocellular Carcinoma (HCC) recurrence after liver transplant (LT) and investigate the impact of alpha-fetoprotein (AFP) levels and Healthcare Resource Utilization (HCRU) on recurrence rates.

Methodology

- A retrospective study was conducted using the Optum de-identified Market Clarity Dataset, which consists of connected claims and electronic health records (EHR) of patients. Patients with ICD-10 code (C22*) of HCC who were aged ≥ 40 years were included in the study.
- The time frame for the study was January 1, 2011, through December 31, 2022. The first diagnosis of HCC was taken as the index date and patients identified between January 1, 2012, and December 31, 2018, were taken into consideration.
- Patients with 12-month pre- and 48 months post-index continuous medical and pharmacy eligibility and continuous clinical activity were included in the study. Only incident patients with no HCC diagnosis in the preceding 12 months from the index date were selected.
- LT patients were identified post-12 months of HCC diagnosis (Jan 2012 to Dec 2019) and tracked for 36 months to examine racial/ethnic disparity in the mean number of days of HCC recurrence (MRD) and HCRU.
- Additionally, we also examined AFP levels in LT patients by segregating patients into three risk groups and monitored these three risk groups to check disparity in recurrence days. Patients' AFP levels were identified using clinical notes. Kruskalwalis post-hoc test was performed to check the statistical significance

Fig 1: LT and HCC recurrence by risk group

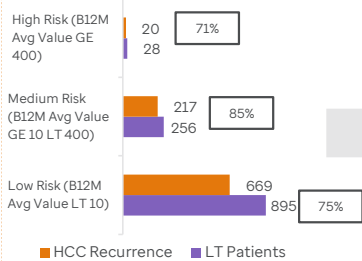


Fig 2: Mean recurrence days by risk group



Fig 3: Mean recurrence days by risk group and race/ethnicity

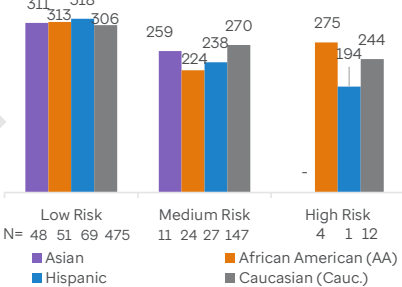
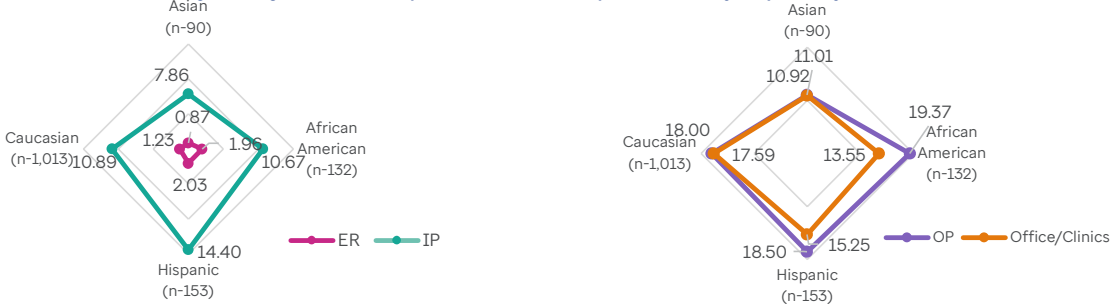


Fig 4: Average all-cause annual patient visits at different place of service by race/ethnicity



Results

- In total, 2,377 HCC patients received liver transplant surgery. Out of these, 1,542 developed HCC recurrence within 36 months of the follow-up period with a mean recurrence day (MRD) of 320.43 (without risk stratification).
- AFP levels were recorded for a total of 1,179 LT patients during the study period. The HCC recurrence rate was 74.75% for low risk, 84.77% for medium risk, and 71.43% for high risk ($p<0.0001$). In the medium risk group, African American (224) experienced recurrences much earlier compared to Caucasian (270) while in the low-risk group African American (313) and Caucasian (306) had nearly similar MRD.
- Compared to Caucasian patients (mean - 1.23, SD-3.57), both African American (mean - 1.96, SD - 3.73; $p=0.046$) and Hispanics (mean - 2.03, SD - 3.73; $p=0.0058$) patients had a substantially higher mean number of ER visits. Additionally, significant differences were observed in OP visits between Caucasian (mean - 18.00, SD-33.35 and Asian (mean - 11.01, SD-19.65; $p=0.0152$)

Conclusion

- In conclusion, this real-world data study revealed the existence of racial disparities in recurrence of HCC after LT and HCRU of these patients.
- These findings highlight the urgent need for targeted interventions and healthcare policies to address these disparities and improve outcomes for all the patients undergoing liver transplant for HCC.