# Demographics, clinical presentation, and outcomes of HIV infected and uninfected patients with hepatocellular carcinoma

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## Background

- Due to the efficacy of highly active antiretroviral therapy (HAART), HIV infected individuals have longer survival and higher mortality and morbidity from chronic liver diseases.
- HIV infected individuals are seven times more likely to develop hepatocellular carcinoma (HCC).
- **Aim**: We compared the survival of HCC patients with and without HIV infection and identified demographic factors, clinical presentation, and treatment patterns that may impact survival differently between the two groups.

## Methods

- Retrospective cohort study of HCC patients at PHHS and CUH in Dallas between January 2010 and June 2022.
- Excluded patients without a known HIV diagnosis status.
- Demographics, prognostic measures, tumor characteristics, treatment modalities, and survival were compared between patients with and without HIV infection.
- Survival curves were generated using Kaplan-Meier plots and compared with the log rank test.

## Results

- Of 1,391 HCC patients, 43 (3.1%) were HIV infected (**Fig 1**).
- HIV infected patients were more likely to have Medicare (51% vs 29%; P=0.012) and less likely to be uninsured (0% vs 9.9%; P=0.012).
- Different chronic liver disease (CLD) etiologies (**Fig 2**): HIV infected patients were less likely to have alcohol-related liver disease (p<0.001) and more likely to have HBV infection (p<0.001).

**Figure 1. HIV infected vs uninfected**

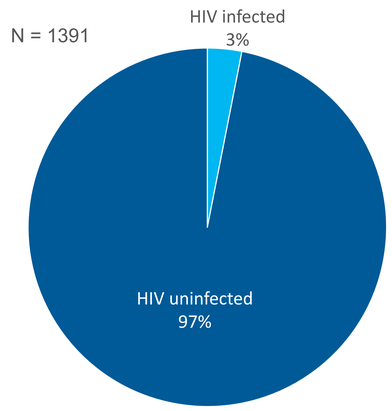


**Figure 2. Etiology of CLD in HIV infected vs uninfected**

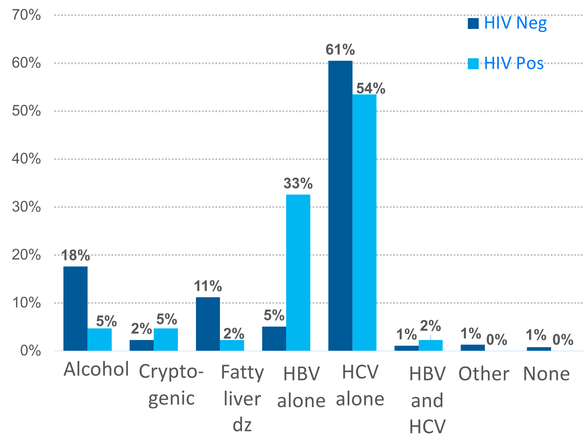


**Figure 3. Comparison of overall survival**

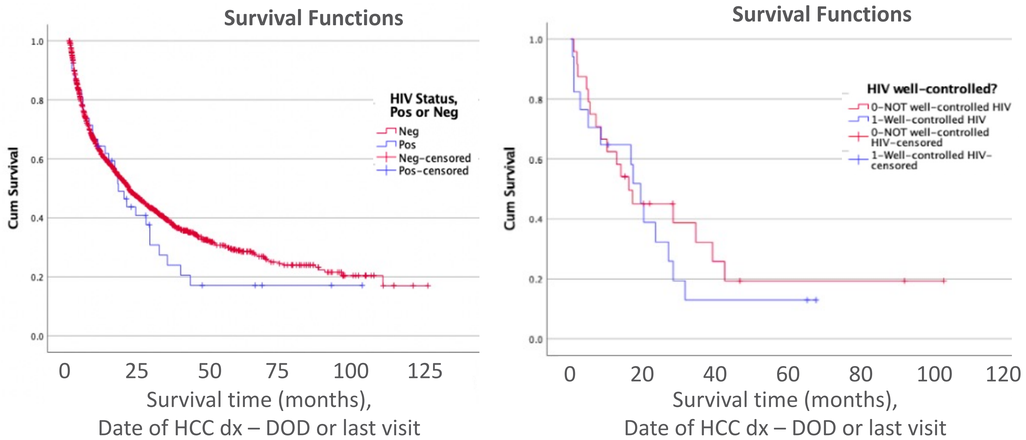


**Table 1: Comparison of Unadjusted Overall Survival (OS)**

| | Median OS (months) | p |
|---|---|---|
| **HIV uninfected** | 21.1 | p=.32 |
| **HIV infected (overall)** | 17.2 | |
| **Uncontrolled** | 16.0 | p=.52 |
| **Well-controlled** | 19.3 | |

**Table 2: Multivariate Hazard Ratio Analysis of OS**

| | Median Survival (months) | | | |
|---|---|---|---|---|
| **Variables** | **HIV Neg** | **HIV Pos** | **HR** | **95% CI** |
| **Etiology of CLD** | | | | |
| Alcohol | 25.7 | .5 | | |
| Cryptogenic | 7 | 2.6 | | |
| Fatty liver disease | 19.2 | 7.0 | 1.53 | 1.12-2.10 |
| HBV alone | 8.2 | 10 | 1.70 | 1.16-2.50 |
| HCV alone | 21.5 | 27.1 | | |
| HBV and HCV | 8.1 | 28.4 | | |
| **ECOG functional status** | | | | |
| 0-1 | 22.8 | 19.3 | | |
| >=2 | 3.9 | 4.8 | 1.33 | 1.04-1.70 |
| **Child-Pugh-Turcotte** | | | | |
| A | 31.6 | 23.4 | | |
| B | 13.5 | 10.0 | 1.28 | 1.07-1.52 |
| C | 7.6 | 1.6 | | |
| **# of lesions at diagnosis** | | | | |
| Solitary | 33.9 | 28.4 | | |
| Multiple | 11.5 | 5.3 | 1.21 | 1.02-1.45 |
| **HIV Status** | | | | |
| Negative | 21.1 | | | |
| Positive | | 17.2 | 1.30 | .86-2.00 |

- Median overall survival (OS) was similar between HIV infected and uninfected patients, and it was similar between well-controlled and uncontrolled HIV infected patients (**Table 1**).
- Factors that are associated with worse OS include: underlying fatty liver disease, HBV, ECOG functional status >=2, Child Pugh class B, and multiple lesions at the time of diagnosis (**Table 2**).

## Conclusion

- HIV infected HCC patients present with different underlying liver disease but have similar prognostic and tumor characteristics.
- Overall survival was similar between HIV infected and uninfected individuals.