

Does race affect management and survival in hepatocellular carcinoma in the United States?

Richard S. Hoehn, MD, Dennis J. Hanseman, PhD, Koffi Wima, MS, Audrey E. Ertel, MD, Ian M. Paquette, MD, Daniel E. Abbott, MD, and Shimul A. Shah, MD, MHCM, Cincinnati, OH

Background. Hepatocellular carcinoma (HCC) is a leading cause of cancer-related death, and its incidence is increasing in the United States. This analysis describes the association between race, treatment decisions, operative outcomes, and survival for patients with HCC.

Methods. The National Cancer Database was queried for all patients diagnosed with HCC from 1998 to 2011 ($n = 143,692$) who were white (76.9%), black (14.7%), or Asian (8.4%). Multivariate logistic regression was performed to determine factors that affected the likelihood of having surgery and post-operative mortality, and a Cox regression was performed to evaluate the effect of these factors on survival.

Results. The proportion of black patients with HCC increased in the United States during the 13-year period. There were no substantial differences among races in tumor size, grade, or overall clinical stage at the time of presentation; however, black patients were less likely to have surgery (odds ratio 0.69, 95% confidence interval 0.67–0.72). Of patients who had surgery, there were no significant differences in pathologic stage, margin negative resection rate, or 30-day mortality; however, black patients had the longest interval between diagnosis and surgery, as well as the worst overall adjusted survival (hazard ratio 1.14, 95% confidence interval 1.05–1.25). These findings were independent of HCC stage, insurance provider, and socioeconomic status.

Conclusion. Despite similar clinical presentation of HCC, substantial racial differences exist with regard to management and outcomes. Black patients are less likely to receive surgery for HCC and have worse long-term survival, despite similar perioperative quality metrics. This difference in long-term survival may highlight neighborhood, cultural, or biological differences between races. (*Surgery* 2015;158:1244-51.)

From the Cincinnati Research in Outcomes and Safety in Surgery (CROSS), Department of Surgery, University of Cincinnati School of Medicine, Cincinnati, OH

HEPATOCELLULAR CARCINOMA (HCC) is the most common primary liver cancer in adults, the fifth most common solid organ tumor worldwide, and the third leading cause of cancer-related death.¹ In the United States, the most common cause of HCC is hepatitis C virus (HCV),² but the growing epidemic of obesity and metabolic syndrome also is projected to drive the incidence of HCC in coming years.³ Although the incidence of HCC has been on the increase for decades, there has been a deceleration in incidence-based mortality in

recent years which may be due to earlier detection and increased surgical intervention.⁴

As with other medical conditions, studies of HCC have described an association between race, management, and outcomes. HCC appears to be more common among black patients, possibly because of increased HCV infection.^{5,6} Several reports have found that black patients present with more advanced HCC⁷ and are less likely than other races to receive surgical therapy, even for early-stage HCC.⁷⁻¹¹ Many have found black patients to have inferior survival,^{7,9,12} but others have not.^{13,14} It is possible that these differences may be attributable to stage of disease, socioeconomic status, and other demographic details.^{8,15,16} Much of the literature regarding race and HCC is based either on state-specific data or the Surveillance, Epidemiology, and End Results database, which represents 28% of the US population.¹⁷

With this national analysis, the largest to date, we sought to provide a more complete synopsis of the association between race and presentation,

Funded by the University of Cincinnati Department of Surgery.
Accepted for publication March 30, 2015.

Reprint requests: Shimul A. Shah, MD, MHCM, Associate Professor of Surgery, Division of Transplant Surgery, University of Cincinnati School of Medicine, 231 Albert Sabin, Way, ML 0558, MSB 2006C, Cincinnati, OH 45267-0558. E-mail: Shimul.shah@uc.edu.

0039-6060/\$ - see front matter

© 2015 Elsevier Inc. All rights reserved.

<http://dx.doi.org/10.1016/j.surg.2015.03.026>

management, and outcomes in HCC. We hypothesized that racial differences exist in the management and survival of patients with HCC, and that these effects were independent of other demographic and tumor-specific factors.

METHODS

Data source. Data for this study were drawn from the American College of Surgeons National Cancer Data Base (NCDB) liver Participant User File for the years 1998–2011. This is a nationwide, facility-based, clinical data set that captures 70% of all diagnosed malignancies in the United States.¹⁸ The NCDB collects deidentified patient level data from nationally accredited cancer program registries using standardized data items and coding definitions. These data include patient demographics as well as detailed information regarding cancer staging, tumor histology, treatment types and courses, short-term surgical outcomes, and long-term survival.

Patient cohort. The liver PUF was queried for all patients with HCC ($n = 143,692$). Subtypes of HCC were excluded. Analysis of patient demographics, operative characteristics, and short-term outcomes included all of these patients. Patients were categorized as Asian, black, or white. The following patient information was collected for all patients: age (years), sex, primary insurance, income (median household income for patient zip code based on 2000 US Census data, in quartiles), education (median percentage of adults in the patient's zip code who did not graduate from high school based on 2000 US Census data, in quartiles), distance traveled for treatment, patient location (metro, urban, rural), tumor grade, tumor size, American Joint Committee on Cancer clinical stage, facility type (academic: >500 new cancer diagnoses annually, at least 4 postgraduate training programs; comprehensive community: >500 new cancer diagnoses annually, postgraduate training optional; community: 100–500 new cancer diagnoses annually, postgraduate training optional; and other), and reason for not having surgery.

Patients who had surgery were identified with the use of surgical procedure codes specific to the NCDB. The following information was collected for all operative patients: procedure type (categorized as resection, transplant, radiofrequency ablation, or other/unknown), days from diagnosis to surgery, American Joint Committee on Cancer pathologic stage, whether any lymph nodes were sampled, if any lymph nodes were positive, surgical margin status, 30-day readmissions, 30-day mortality,

and survival (for patients diagnosed between 1998–2006; median follow-up: 2.5 years).

Statistical analysis. The race cohorts were compared with respect to the aforementioned variables by the use of χ^2 tests for categorical variables and rank-sum tests for continuous variables. Kaplan-Meier survival analysis was used to compare survival among the race cohorts for all patients, for patients who underwent surgery, and for stage 1 and 2 patients who underwent surgery. Multiple logistic regression models were created to analyze predictors of having surgery and of 30-day mortality; Cox regression was used to model long-term survival. Included in these models were age, sex, race, primary insurance, income, education, facility type, clinical stage, pathologic stage, surgical center volume tertile, and the presence of surgical management. We also used a random effects model to adjust for the clustering of patients within centers. An alpha level of 0.05 was used for all significance tests. The data were analyzed using SAS 9.3 (SAS Institute, Cary, NC).

RESULTS

Patient demographics. The number of HCC diagnoses increased during the study period, from 6,347 in 1998 to 14,745 in 2011. The number of centers reporting to the NCDB remained consistent during these years (1,161 and 1,182, respectively), suggesting that overall HCC diagnoses are increasing. Black patients represent an increasing proportion of this cohort; 13.2% of HCC patients were black in 1998 compared with 16.7% in 2011. Preoperative characteristics of the 3 race cohorts are described in [Table I](#). Black patients were the youngest and were most likely to have Medicaid or be uninsured, to be in the lowest income and education quartiles, and to receive treatment at an academic medical center. The 3 race groups had similar tumor size, grade, and overall clinical stage at the time of diagnosis; however, black patients were less likely to receive surgery.

Postoperative characteristics and survival analysis. The cohort of patients who underwent surgery is described in [Table II](#). Asian patients were most likely to receive liver resection for their tumors whereas white patients more often received liver transplantation. Black patients waited the longest from diagnosis to surgery. There was no difference in overall pathologic stage between the race groups, but black patients were less likely to have positive lymph nodes. Overall, operative outcomes improved over time ([Fig 1](#)). The rate of operative resections with negative lymph nodes and negative operative margins increased whereas

Download English Version:

<https://daneshyari.com/en/article/4306760>

Download Persian Version:

<https://daneshyari.com/article/4306760>

[Daneshyari.com](https://daneshyari.com)