Variations in liver cancer attributable to hepatitis virus variations

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Significant clinical variations exist among patients with the most common type of liver cancer called hepatocellular carcinoma (HCC), depending on the viral cause of the disease -hepatitis B virus (HBV) or hepatitis C virus (HCV). These differences suggest that hepatitis status should be considered when developing treatment plans for newly diagnosed patients, according to researchers at The University of Texas MD Anderson Cancer Center.

These findings, from the largest single-center studies of its kind will be presented on Sunday, May 31 in an oral presentation at the 2015 Annual Meeting of the American Society of Clinical Oncology (ASCO). The research builds on previous studies of differential effects of demographics, geographical distribution and risk factors, including hepatitis status, on treatment outcomes among patients with inoperable HCC. In these earlier studies, researchers observed different outcomes based on demographics and geographic patients distribution (Asia versus Europe and USA) among patients receiving the same local or systemic therapy approaches. They hypothesized that these differences might be attributed to variations with regard to hepatitis type, among other factors.

"Currently, a patient's form of hepatitis is not a factor in treatment planning, but the two types of the virus result in different disease impacts and some variations in outcomes. Most likely, this is related to the difference in how hepatitis leads to cancer development, in addition to the differences in the natural history of both hepatitis forms. This

might be the result of treating technically different diseases the same way," said principle investigator, Ahmed Kaseb, M.D., associate professor, Gastrointestinal (GI) Medical Oncology, MD Anderson. "This study provides more evidence that future clinical trials should stratify patients by hepatitis type to help identify better drugs and create personalized treatment modalities."

In the current study, researchers investigated detailed characteristics of 815 HCC patients treated at MD Anderson between 1992 and 2011, assessing a range of disease-state variables and survival rates. HBV is a DNA virus and HCV is an RNA virus, and it has previously been unclear whether this difference might influence the clinical-pathologic features of HCC or patient outcomes.

Researchers found that patients with HBV were more likely to develop HCC at a younger age than HCV patients and presented more aggressive disease, marked by:

- Advanced diagnosis stage (3-6);
- High alpha-fetoprotein, a cancer signal and measure of how well treatments are working;
- Poorly differentiated tumor cells, which tend to grow and spread more quickly;
- Larger tumor size;
- Extent of cancer in the liver (>50% of the liver volume), a factor for metastases; and
- Portal thrombosis, a blockage or narrowing of the vessel that brings blood to the liver from the intestines.

Patients with HCV-associated cancer were more likely to exhibit:

- Underlying cirrhosis;
- Have a history of greater alcohol and cigarette use; and

- A higher rate of diabetes.

The median survival rates were 10.9 and 9.3 months for HCV and HBV, respectively. At ASCO, the research team will also present the specific survival outcomes based on different therapies.

According to an editorial authored by Kaseb and published in Oncology, roughly 700,000 patients are newly diagnosed with HCC each year, and more than two-thirds of new cases are from the Asia-Pacific region - mainly linked to chronic HBV infection. Recent studies have reported a rise in the number of cases in the U.S. and Western Europe, largely due to an increase in HCV-related liver disease, which accounts for roughly half of all U.S. cases. However, most patients are not candidates for any curative treatments because of advanced disease at diagnosis and/or a background of advanced chronic liver disease.

"Eligibility for certain treatments depends on cancer staging at diagnosis. Thus, this study has major implications for determining how we treat new HCC patients," said Kaseb. "Especially for patients with HBV, we need to determine if more aggressive treatment is warranted at the outset."

Provided by University of Texas M. D. Anderson Cancer Center