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# Current Treatment for Hepatocellular Carcinoma

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**H**epatocellular carcinoma (HCC), or hepatoma, is the fifth most common of all malignancies worldwide and results in approximately one million deaths annually (Yu & Keeffe, 2003). Although the incidence of HCC is highest in parts of Africa and Asia, recent studies have documented a clear rise in the number of cases in Western Europe, Japan, and the United States (Di Bisceglie, 2002; Nakakura & Choti, 2000). The epidemiology and characteristics of HCC can differ depending on the biology of the cancer reflected in various geographic locations in the world (Llovet & Beaugrand, 2003; Omata et al., 2002; Rilling & Drooz, 2002; Venook, 2000); however, this article focuses on HCC in the United States.

Although HCC is uncommon in the United States, its prevalence has increased by nearly 75% since the 1980s, with an overall incidence of 2.40–3.23 cases per 100,000 (Cha, DeMatteo, & Blumgart, 2002; Di Bisceglie, 2002; El-Serag & Mason, 1999; Hammett & Gollan, 2001; Hassan, Frome, Patt, & El-Serag, 2002). The recent rise in incidence has been linked to an increased prevalence of hepatitis and better diagnostic techniques (Cha et al.; El-Serag & Mason; Koea, 2001; Llovet & Beaugrand, 2003). In the United States, HCC occurs more frequently in men than women by a ratio of three to one, rates in African American populations are approximately twice as high as in Caucasians, and older age is associated with a higher incidence of HCC (Di Bisceglie; El-Serag & Mason). The reason for the difference in incidence between

Hepatocellular carcinoma (HCC) is the fifth most common cancer worldwide. In the United States, the incidence of HCC has increased by nearly 75% since the 1980s. The rise in HCC diagnoses in the United States has been attributed to an increased number of patients infected with viral hepatitis and better diagnostic techniques. The management of HCC begins with diagnostic confirmation, followed by accurate staging. Historically, the prognosis for patients with HCC has been poor; however, improved surveillance and radiologic imaging techniques have led to earlier detection of HCC and an increased opportunity to treat patients. Treatment options for HCC include surgical and nonsurgical modalities. Surgical therapy, by way of partial hepatectomy or orthotopic liver transplantation, is the only potentially curative treatment for HCC, but most patients are not eligible for these procedures by the time of diagnosis. Palliative options include ablative techniques, radiation, and systemic therapies. As the incidence of this malignancy continues to rise, oncology nurses, who are an integral part of the multidisciplinary team caring for these patients, must be aware of current management for HCC. This article will provide an overview of the complex management of patients with HCC in the United States.

**Key Words:** liver neoplasms, liver transplantation, fibrosis

the sexes may be attributed to a higher incidence of hepatitis B virus (HBV), hepatitis C virus (HCV), and alcoholism in men. In addition, HBV and HCV are more prevalent among African Americans than Caucasians (El-Serag & Mason; Koea).

## Etiology and Risk Factors

Although the exact etiology of HCC is unknown, its prevalence parallels that of viral hepatitis. In fact, most cases are associated

with HBV and HCV (Ryder, 2003). Alcoholic cirrhosis is another major risk factor associated with HCC in the United States (El-Serag & Mason, 1999). Alcoholism, HBV, and HCV are linked with the development of cirrhosis, which fosters an environment that is conducive to the development of HCC (Hassan et al., 2002). McCaughan, Koorey, and Strasser (2002) postulated that the ongoing process of hepatocellular injury, inflammation, regeneration, and repair characteristics of cirrhosis favors carcinogenesis. The risk of developing HCC varies and correlates with the state and etiology of cirrhosis. Approximately 70% of hepatomas develop in cirrhotic livers, with an annual incidence of 3%–5% (Koea, 2001; Llovet & Beaugrand, 2003). Additional risk factors for the development of cirrhosis and HCC include hemochromatosis, primary biliary cirrhosis, autoimmune cirrhosis, and exposure to highly toxic carcinogens (e.g., aflatoxins) and androgens (Cha et al., 2002).

HCV has a lower global prevalence than HBV; however, HCV has been linked to more than 50% of the HCC cases in the United States (Monto & Wright, 2001). In the United States, approximately 3.9 million patients are infected with chronic HCV, compared to roughly 1.25 million with seroprevalence of HBV (El-Serag & Mason, 1999). An increase in

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