Management of Patients Who Have Undergone Hepatic Artery Chemoembolization

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Hepatocellular carcinoma (HCC) is the fifth most common cause of all malignancies and causes approximately one million deaths each year. Surgical liver resection is the only cure for HCC; however, few patients are eligible to undergo this procedure. Hepatic artery chemoembolization (HACE) is a technique that delivers high concentrations of chemotherapeutic agents and blocks the blood supply to the liver for prolonged periods of time. HACE has demonstrated an overall increase in survival. The HACE procedure, pre- and postprocedure complications, and the care required by patients with HCC are critical for oncology nurses to understand.

Hepatic artery chemoembolization (HACE) has been a prominent ablative treatment since the late 1980s. It is used to suppress intrahepatic tumor growth in an effort to palliate symptoms and perhaps prolong survival (Stuart, 2003). HACE is indicated for malignancies, including hepatocellular carcinoma (HCC), primary carcinoid tumors, and metastatic disease of the liver. This article primarily will discuss HCC.

HCC is the fifth most common cause of all malignancies and causes about one million deaths annually (Yu & Keeffe, 2003). HCC is the third most common cause of cancer deaths in men and the seventh most common cause of cancer deaths in women (Yu & Keeffe). Surgical liver resection is the only cure for HCC; however, few patients are eligible to undergo this procedure. As the frequency of HCC continues to rise in the United States, oncology nurses will encounter more patients being treated with therapies such as HACE. Therefore, nurses must understand the clinical presentation of HACE and the care needed by these patients. This article will focus on the nursing care required by patients before and after the HACE procedure and the most common side effects of this therapy.

Liver Anatomy and Physiology

The liver is the largest internal organ in the body, located in the upper right quadrant of the abdominal cavity. The liver's right lobe is larger than the left, and the organ is subdivided further into eight segments that reflect its underlying vascular complexity (Devita, Hellman, & Rosenberg, 2001) (see Figure 1).

The common hepatic artery carries oxygenated blood to the liver and holds 25% of the liver's total blood volume (Rospond & Mills, 1995). The common hepatic artery enters into the porta hepatis medially to the common bile duct, branches off of the gastroduodenal artery to become the proper hepatic artery, and bifurcates into the left and right hepatic arteries. The liver, therefore, has a dual supply of oxygenated blood from the left and right hepatic arteries (Devita et al., 2001). Hepatic tumors are supplied primarily by the hepatic artery and respond better to chemoembolization than tumors supplied by the portal vein, which carries partially oxygenated blood and holds 75% of the liver's blood supply. The portal vein is posterior to the head and neck of the pancreas and is located near the confluence of the splenic artery, the superior and inferior mesenteric arteries, and the coronary veins. The portal vein lies posteriorly in the porta hepatis and runs from the hepatoduodenal ligament to the hilus of the liver. Here, the vein divides to form right and left branches that supply the right and left hepatic lobes. Blood and waste products leave the liver via the hepatic veins and enter the inferior vena cava.

The ability of the liver to mutually substitute hepatic arterial and portal venous blood supplies may explain why humans can survive with complete portal vein occlusion and almost complete obstruction of the hepatic artery. Normal liver tissue receives the majority of its blood supply from the portal vein and 20%–30% from the hepatic artery. Liver tumors receive 80% of their blood supply from the hepatic artery; hence, HACE allows for treatment of the tumor without affecting the remaining uninvolved liver (Cha, DeMatteo, & Blumgart, 2002; Venook et al., 1990).

Risk Factors and Etiology of Hepatocellular Carcinoma

HCC is a disease of multifactorial etiology. The most important predisposing factor is cirrhosis (Desjardins, 2002). Other risk factors

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