



An understanding of hepatocellular carcinoma in adults

KEYWORDS

Liver Cancer, Signs, Symptoms, Diagnosis, Treatment

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ABSTRACT *Some cancers begin in the cells of the liver itself – this is called primary liver cancer. More commonly, cancers start in cells in other organs of the body but then spread to the liver – this is called secondary liver cancer. Your doctor may use the term 'liver metastasis' (which is another way of saying that cancer has spread to the liver). It is possible for several cancer deposits (metastases) to occur in the liver. There is more than one sort of primary liver cancer. One such type starts within the cells, which make up most of the liver tissue – this is known as a hepatoma, or sometimes hepatocellular carcinoma (HCC for short). This is the most common type of primary liver cancer. Another type begins in the cells, which line the tubes (or ducts) that carry the bile out of the liver – this bile duct cancer is known as a cholangiocarcinoma.*

Introduction

Hepatocellular carcinoma is a tumor of the liver. Hepatocellular carcinoma is responsible for over 12,000 deaths per year in the United States where the incidence of the disease is approximately 2.5 per 100,000 population. It is one of the most common malignancies in adults, and is more common in men than women (2-4:1), and blacks than whites. Worldwide, over a million deaths per year (about 10% of all deaths in the adult age range) can be attributed to hepatocellular carcinoma. The occurrence of hepatocellular carcinoma varies widely depending on geographic location. Whereas incidence in the Western world is less than two per 100,000 males, it is currently 40-60 per 100,000 in Africa and parts of the Far East. In the United States, hepatocellular carcinoma is more common in people of East Asian origin. In the future, the prevalence of hepatocellular carcinoma may increase in the United States and parts of Europe because of the high incidence of hepatitis C. At the same time, many experts expect incidence rates to decline in the Far East due to universal immunization for hepatitis B.^{1,2}

This cancer is more common in men than women and is usually found in people over the age of 60. Some factors that increase the risk of liver cancer are: • Cirrhosis – a disease of the liver that is caused by liver cells being damaged and replaced by scar tissue. It can be caused by alcohol abuse, chronic infection via hepatitis B and C, fatty liver, primary sclerosing cholangitis and other causes of liver disease².

Types of liver cancer

There are different types of primary liver cancer: • Hepatocellular carcinoma (HCC) – starts in the hepatocytes, the main cell type in the liver. HCC, also called hepatoma, is the most common type of primary liver cancer. • Cholangiocarcinoma – starts in the cells lining the bile ducts, which connect the liver to the bowel and the gall bladder. It is also called bile duct cancer. • Angiosarcoma – a rare type of liver cancer starting in the blood vessels. It usually occurs in people over 70.⁴

Risk factor of liver cancer

There are different types of risk factors, some of which can be modified and some which cannot. It should be noted

that having one or more risk factors does not mean a person will develop liver cancer. Many people have at least one risk factor but will never develop liver cancer, while others with liver cancer may have had no known risk factors. Even if a person with liver cancer has a risk factor, it is usually hard to know how much that risk factor contributed to the development of their disease. While the causes of liver cancer are not fully understood, there are a number of factors associated with the risk of developing the disease. These factors include: chronic hepatitis B infection, chronic hepatitis C infection, a family history of both hepatitis B and liver cancer, cirrhosis of the liver, obesity.⁵

Symptoms

Signs and symptoms of liver cancer often do not show up until the later stages of the disease, but sometimes they may show up sooner. Some of the most common symptoms of liver cancer are:⁶ • Weight loss (without trying) • Loss of appetite • Feeling very full after a small meal • Nausea or vomiting • An enlarged liver, felt as a mass under the ribs on the right side • An enlarged spleen, felt as a mass under the ribs on the left side • Pain in the abdomen or near the right shoulder blade • Swelling or fluid build-up in the abdomen • Itching • Yellowing of the skin and eyes (jaundice) Some other symptoms can include fever, enlarged veins on the belly that can be seen through the skin, and abnormal bruising or bleeding. Some liver tumors make hormones that act on organs other than the liver. These hormones may cause: • High blood calcium levels (hypercalcemia), which can cause nausea, confusion, constipation, weakness, or muscle problems • Low blood sugar levels (hypoglycemia), which can cause fatigue or fainting • Breast enlargement (gynecomastia) and/or shrinkage of the testicles in men • High counts of red blood cells (erythrocytosis) which can cause someone to look red and flushed • High cholesterol levels Many of the signs and symptoms of liver cancer can also be caused by other conditions, including other liver problems. Still, if you have any of these problems, it's important to see your doctor right away so the cause can be found and treated, if needed.

Primary Liver Cancer

Primary liver cancer starts in the cells, bile ducts, blood vessels or connective tissue of the liver. It's not very com-

mon. Primary liver cancer is different from cancer that starts somewhere else in the body and spreads to the liver (called secondary liver cancer or metastatic liver cancer).⁷ Most primary liver cancers begin in liver cells (called hepatocytes). When primary liver cancer starts here, it is called hepatocellular carcinoma. Cancer can also start in the cells of the bile ducts, and that cancer is called cholangiocarcinoma. The bile ducts are tubes that carry bile from the liver to the gallbladder. The gallbladder stores bile until it is needed for digestion. The information in this brochure is about hepatocellular cancer, but cholangiocarcinoma is often treated the same way.⁸

Secondary liver cancer

Most of the time when cancer is found in the liver it did not start there but has spread (metastasized) from somewhere else in the body, such as the pancreas, colon, stomach, breast, or lung. Because this cancer has spread from its original (primary) site, it is a secondary liver cancer. These tumors are named and treated based on their primary site (where they started). In the United States and Europe, secondary (metastatic) liver tumors are more common than primary liver cancer. The opposite is true for many areas of Asia and Africa.⁹

Diagnosis¹⁰

Physical exam: Your doctor feels your abdomen to check the liver, spleen, and other nearby organs for any lumps or changes in their shape or size. Your doctor also checks for ascites, an abnormal buildup of fluid in the abdomen. Also, your skin and eyes may be checked for signs of jaundice.

Blood tests: Many blood tests may be used to check for liver problems. One blood test detects alphafetoprotein (AFP). High AFP levels could be a sign of liver cancer. Other blood tests can show how well the liver is working.

CT scan: An x-ray machine linked to a computer takes a series of detailed pictures of your liver and other organs and blood vessels in your abdomen. You may receive an injection of contrast material so that your liver shows up clearly in the pictures. On the CT scan, your doctor may see tumors in the liver or elsewhere in the abdomen.

Ultrasound test: The ultrasound device uses sound waves that can't be heard by humans. The sound waves produce a pattern of echoes as they bounce off internal organs. The echoes create a picture (sonogram) of your liver and other organs in the abdomen. Tumors may produce echoes that are different from the echoes made by healthy tissues.

Biopsy: A biopsy usually is not needed to diagnose liver cancer, but in some cases, the doctor may remove a sample of tissue. A pathologist uses a microscope to look for cancer cells in the tissue.

Treatment¹¹

For primary liver cancer, the choice of treatment also depends on: • the condition of the liver • the number, size and location of tumours • whether or not the cancer has spread outside the liver.

Surgery: Surgery is the most effective treatment for cancer that has not spread outside the liver and when the tumour can be completely removed by surgery (localized resectable). Surgery is done under a general anesthetic (you will be unconscious), and you may need to stay in the hospital for several days after the surgery.

Cryosurgery: Cryosurgery destroys cancer cells by freezing them. Cryosurgery may be used to treat primary liver tumours that cannot be removed by surgery (are unresectable) and have not spread outside the liver.

Radiofrequency ablation: Radiofrequency ablation (RFA) uses a high-frequency electrical current to heat the cancer cells and destroy them. The doctor inserts a special needle containing tiny electrodes directly through the skin of the abdomen.

Ethanol Injection: Ethanol (alcohol) is injected directly into the liver tumor to destroy cancer cells.

Chemotherapy or chemoembolization: Chemotherapy uses drugs to destroy cancer cells. In some cases, the chemotherapy can be directly injected into the liver tumor.

Radiation Therapy: Radiation therapy uses radiation (high-energy x-rays) to destroy cancer cells.

Sorafenib (Nexavar): Sorafenib is an oral medication FDA approved for use in advanced cases of hepatocellular carcinoma (the most common type of primary liver cancer).

Transplant: If the cancer has not spread, for some patients a liver transplant (replacement of the liver) may be an option.

Conclusion & Prognosis

As the number of people affected by primary liver cancer is rapidly increasing, and a large proportion of all patients with cancer will have secondary spread to the liver, it is crucial that further research is performed. In order to understand how to prevent these cancers, we need more understanding of why and how they develop. There is real demand for new effective treatments for liver cancers to be developed to improve the quality and duration of life for those diagnosed with liver cancer.

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