



Chemoembolization Techniques for malignancy of the liver: A Treatment Approach

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DESCRIPTION

Chemoembolization is a procedure that delivers chemotherapy drugs directly to a liver tumor through the artery that supplies blood to it. It also blocks the blood flow to the tumor, depriving it of oxygen and nutrients. Chemoembolization is used to treat liver cancer that cannot be removed by surgery or ablation, or to control the cancer while waiting for a liver transplant. Chemoembolization can shrink the tumor, relieve symptoms, and improve survival. Liver cancer is a disease in which abnormal cells grow in the liver, a large organ that helps digest food and filter toxins from the blood. Liver cancer can be primary, meaning it starts in the liver, or secondary, meaning it spreads to the liver from another part of the body. The most common type of primary liver cancer is Hepatocellular Carcinoma (HCC), which accounts for about 80% of cases. The main risk factors for HCC are chronic infection with hepatitis B or C virus, cirrhosis (scarring) of the liver, alcohol abuse, obesity, diabetes, and exposure to aflatoxins.

The treatment of liver cancer depends on several factors, such as the size, number, and location of the tumors, the stage of the disease, the function of the liver, and the overall health of the patient. The main goal of treatment is to remove or destroy the tumor completely, if possible. This can be done by surgery (resection or transplant), ablation (using heat, cold, or electricity to kill the tumor cells), or radiation therapy (using high-energy rays to damage the tumor cells). However, not all patients are eligible for these treatments, either because the tumor is too large or widespread, or because the liver is too damaged or diseased. For patients who cannot have surgery or ablation, chemoembolization is an option to slow down the growth of the tumor and reduce its blood supply. Chemoembolization is a type of embolization therapy, which is a procedure that injects substances into an artery in the liver to block or reduce the blood flow to a tumor. The liver is unique in that it has two blood supplies: most normal liver cells are fed by the portal vein, whereas most liver tumors are fed by the hepatic artery. By blocking the part of the hepatic artery that feeds the tumor,

chemoembolization helps kill off the cancer cells, but leaves most of the healthy liver cells unharmed.

Chemoembolization combines embolization with chemotherapy, which is a treatment that uses drugs to destroy cancer cells. There are different types of chemoembolization, depending on how the chemotherapy drugs are delivered and how the artery is blocked. Trans-Arterial Chemoembolization (TACE) involves injecting chemotherapy drugs into the hepatic artery through a catheter (a thin, flexible tube) that is inserted into a blood vessel in the groin and guided to the liver using X-rays. Then, small particles are injected into the artery to plug it up and trap the drugs near the tumor. Drug-Eluting Bead Chemoembolization (DEB-TACE) is similar to TACE, except that instead of injecting chemotherapy drugs and particles separately, drug-eluting beads (tiny beads that contain a chemotherapy drug) are injected into the artery. The beads slowly release the drug and block the blood flow at the same time.

Radioembolization involves injecting small beads (called microspheres) that have a radioactive substance (yttrium-90 or Y-90) attached to them into the hepatic artery. The beads deliver radiation directly to the tumor and block some of the blood flow as well. The choice of chemoembolization type depends on several factors, such as the availability of resources, the expertise of the doctors, and the characteristics of the tumor and patient. It is not clear which type has a better long-term outcome.

CONCLUSION

Chemoembolization is usually done as an outpatient procedure under local anesthesia and sedation. It takes about an hour and a half to complete. After chemoembolization, patients may experience some side effects, such as pain, fever, nausea, vomiting, loss of appetite, fatigue, and infection. These side effects are usually mild and temporary, and can be managed with medications. Patients may also need regular blood tests and imaging tests to monitor their liver function and tumor response. Chemoembolization is not a cure for liver cancer, but it can help control its growth and improve quality of life. Studies

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have shown that chemoembolization can shrink tumors in about 50% to 60% of patients with HCC⁴, and prolong survival by about 6 to 12 months compared to supportive care alone.

Chemoembolization may also improve the chances of having a successful liver transplant in some patients.