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A multi-institutional study led by Memorial Sloan Kettering Cancer Center (MSKCC) shows that patients whose [colorectal cancer](#) has spread to the liver and who received chemotherapy directly to the liver through a pump in the abdomen (an approach called Hepatic Arterial Infusion or HAI) fare better than those who received systemic (intravenously administered) chemotherapy. The

Chemotherapy Pumped Directly to the Liver Improves Survival for Patients with Colorectal Cancer That Has Spread to the Liver

study was published online in the February 27, 2006, issue of the Journal of Clinical Oncology. [\[PubMed Abstract\]](#)

“This study demonstrates that HAI therapy extends survival and improves quality of life in patients with colorectal cancer that has spread to the liver,” said the study’s lead author [Nancy E. Kemeny, MD](#), medical oncologist in the Department of Medicine at MSKCC. “These positive findings are particularly important, given that metastasis to the liver occurs in 60 percent of patients with metastatic colorectal cancer, and most patients with these liver tumors eventually die of their disease.”

Several smaller studies have previously compared outcomes of HAI with systemic chemotherapy, but this is the first large study that had no crossover between the groups, meaning that none of the patients in the systemic group received HAI therapy.

The study included 135 patients who were assigned randomly to receive either HAI or systemic chemotherapy. All of the patients underwent surgical removal of their primary tumors in the colon or rectum before beginning chemotherapy. Patients receiving HAI then underwent a surgical procedure to have a chemotherapy pump inserted into the abdomen. This procedure can sometimes be done using a minimally invasive laparoscope.

Researchers found that patients receiving HAI lived longer than those receiving systemic chemotherapy, with a median survival of 24 versus 20 months. In addition, patients receiving HAI had better response rates (47 percent versus 24 percent) and longer time to disease progression in the liver (9.8 months versus 7.3 months).

Patients receiving HAI did not experience the usual side effects associated with systemic therapy such as diarrhea, decreased white blood cell counts, and hair loss. However, because patients on the HAI regimen experienced mild toxicity to the liver, their liver function was monitored closely throughout the duration of treatment to prevent the toxicity from becoming more severe.

The research began in 1996, before chemotherapy drugs such as irinotecan and oxaliplatin were available, so both sets of patients received the standard drugs at the time, fluorouracil and leucovorin, and had access to the newer drugs as they became available.

According to Dr. Kemeny, studies are currently underway at MSKCC using HAI therapy in combination with newer drugs, and response rates appear to be even higher. Furthermore, the addition of HAI therapy is also being investigated in patients with primary [liver cancer](#).

The multi-institutional trial was conducted by researchers from the Cancer and Leukemia Group B and the Eastern Cooperative Oncology Group. It was supported in part by the [National Cancer Institute](#). Researchers from the following institutions participated in the study in addition to MSKCC: University of Southern California; University of California at San Francisco; Wake Forest University School of Medicine; Dana-Farber Cancer Institute; and Fox Chase Cancer Center.

Memorial Sloan Kettering Cancer Center is the world’s oldest and largest institution devoted to prevention, patient care, research, and education in cancer. Our scientists and clinicians generate innovative approaches to better understand, diagnose, and treat cancer. Our specialists are leaders in biomedical research and in translating the latest research to advance the standard of cancer care worldwide.

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