
PET-CT Screening For Metastases Affecting Surgical Success



Canadian scientists have examined the influence of Positron Emission Tomography (PET) in the management of colorectal cancer patients with possible metastases previously undetected by computed tomography (CT). All patients involved in the study had surgically removable liver metastases; the aim of the research was to determine whether additional imaging by PET prior to surgery might identify patients whose cancer had spread beyond the liver, to avoid non-curative liver resection.

The Ontario Clinical Oncology Group (OCOG) study was led by principal investigators Dr. Carol-Anne Moulton and Dr. Steven Gallinger in consultation with other University Health Network researchers. The project involved 21 surgeons from nine Ontario hospitals. Findings have been published in the Journal of the American Medical Association's May 14 issue.

Imaging and Metastatic Cancer

Approximately half of patients diagnosed with colorectal cancer develop metastatic liver cancer. Some of these patients are eligible for surgical removal of the cancerous tissue, increasing their chances of survival. Typically, a pre-operative CT scan is performed to determine the extent of the spread and the likelihood of surgical success.

However, long-term survival following surgical treatment for liver metastases secondary to colorectal cancer is not high; about 50 percent of patients have long-term positive outcomes. The culprit is often metastases beyond the liver, which go unidentified by CT scanning.

More Imaging, Less Surgery?

Surgery, which does not improve the odds of survival, is thus futile, and the Canadian researchers sought to determine the value of additional imaging in the form of combined PET-CT to locate hidden metastases. In cases of widespread cancer, non-curative surgery would not be recommended.

Colorectal cancer patients participating in the study were randomly assigned to either PET-CT imaging or no imaging, beyond the CT scan that initially identified the surgically removable liver metastases. 404 patients enrolled in the study between 2005 and 2013.

A total of 263 patients underwent PET-CT scans. No new information was obtained by the additional imaging for 159 of those patients, while new lesions were detected in 49 patients. For 62 of the patients who received PET-CT, the lesion picked up by the baseline CT was not identified by the PET-CT.

Cancer Management and Survival

The results changed the course of the patients' cancer management (cancellation of surgery or more extensive surgery) in only 8.7 percent of the cases. Furthermore, only 2.7 percent of the patients avoided liver surgery deemed to be non-curative as a result of the additional imaging tests. In the end, 91 percent of the PET-CT group had liver resections performed compared to 92 percent of the control group.

After three years, no significant difference was found in survival or disease-free survival for the patients who underwent PET-CT scanning compared to those who had no additional imaging.

Colorectal cancer is a leading cause of cancer death in Canada. OCOG has performed seven trials as part of the Provincial PET in Oncology Program, results of which affect PET funding decisions made by the Ontario Ministry of Health & Long Term Care.

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