Biomarker predicts disease recurrence in colorectal cancer

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Findings published in the *Journal of the American Medical Association* by researchers at Thomas Jefferson University show that the presence of a biomarker in regional lymph nodes is an independent predictor of disease recurrence in patients with colorectal cancer.

Detection of the biomarker, guanylyl cyclase 2C (GUCY2C), indicates the presence of occult metastases in lymph nodes that may not have been identified by current cancer staging methods, according to Scott Waldman, M.D., Ph.D., chairman of the Department of Pharmacology and Experimental Therapeutics at Jefferson Medical College of Thomas Jefferson University.

According to Dr. Waldman, who is also the Samuel M.V. Hamilton Professor of Clinical Pharmacology in the Department of Medicine at Jefferson Medical College, colorectal cancer that has metastasized, or spread, to the regional lymph nodes carries a worse prognosis and a higher risk for recurrence. However, these metastases are often missed, and the cancer is understaged.

"One of the unmet needs in colorectal cancer is an accurate staging method to determine how far the disease has spread," said Dr. Waldman, who is also director of the Gastrointestinal Malignancies Program at the Kimmel Cancer Center at Jefferson. "The current standard method, histopathology, is imperfect since it only involves looking at a very small sample of the regional lymph nodes under a microscope. There is no way to know whether occult metastases are present in the rest of the tissue."

Dr. Waldman and his colleagues conducted a prospective, multicenter study of 257 patients with colorectal cancer that had no metastases identified in the lymph nodes (node-negative) according to current standards. They analyzed the lymph nodes for GUCY2C expression using a technique called reverse transcriptase-polymerase chain reaction (RT-PCR). This technique, according to Dr. Waldman, amplifies the sensitivity to detect cancer cells compared to histopathology.

The majority of patients - 87.5 percent - had lymph nodes that were positive for GUCY2C. Among those patients, 20.9 percent developed recurrent disease. By comparison, only 6.3 percent of the patients whose lymph nodes were negative for GUCY2C developed recurrent disease.

The patients were followed for a median of 24 months for disease recurrence or death. Indeed, patients who expressed GUCY2C had a shorter time to recurrence and a shorter disease-free survival. The prognostic value of the marker persisted even after a multivariate analysis that took other known prognostic factors into account.

According to Dr. Waldman, 20 to 30 percent of patients diagnosed with node-negative colorectal cancer experience disease recurrence within five years. This is approximately the same rate of recurrence as that for some categories of patients diagnosed with node-positive disease. These observations suggest that there are occult metastases in the lymph nodes of node-negative patients at the time of diagnosis. GUCY2C specifically identifies these occult metastases that indicate risk for recurrent disease.

"Beyond predicting disease recurrence, detecting this biomarker could be useful for identifying patients who might benefit from treatment with adjuvant chemotherapy, which is specifically given to patients with node-positive disease," Dr. Waldman said.

Source: Thomas Jefferson University