

Researcher shows diabetes, blood pressure link to colon cancer recurrence, survival

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By all accounts, a combination of colon cancer, diabetes and high blood pressure can be a recipe for medical disaster. Now, a new study led by a surgical oncologist and researcher at Temple University School of Medicine and Fox Chase Cancer Center has shown just how deadly this mix can be. In a retrospective analysis of more than 36,000 patients with colon cancer, investigators showed that those with early stage disease and diabetes or high blood pressure – two components of metabolic syndrome – have a greater risk for the cancer returning after treatment and of dying compared to patients with colon cancer who do not have either condition.

"Although metabolic syndrome has been linked to colon cancer, the third leading cause of [cancer death](#) in the U.S., previous work looking at its effect on mortality has not adequately accounted for [cancer stage](#) or treatment," said senior author Nestor Esnaola, MD, MPH, MBA, Chief of the Division of Surgical Oncology, Professor of Vice-Chair of Clinical and Academic Affairs in the Department of Surgery at Temple University School of Medicine. "Our results suggest that patients with early stage colon cancer who also have diabetes or hypertension may need to be followed more closely for recurrence and could potentially benefit from broader use of [adjuvant chemotherapy](#)." Dr. Esnaola and his team reported their findings December 20, 2012 in an early online publication in the journal *CANCER*.

Metabolic syndrome is a cluster of conditions that affects one in five American adults and which can include diabetes, obesity, high blood

pressure, low levels of [good cholesterol](#) and high amounts of lipids in the blood.

To better understand the effect of metabolic syndrome on colon cancer outcomes, Dr. Esnaola and his team linked data from the [National Cancer Institute](#)'s Surveillance, Epidemiology and End Results (SEER) program, a large population-based database, to [Medicare data](#) from 1998 to 2006 on 36,079 patients with colon cancer, including 7,024 patients (19.5 percent) who were identified as having metabolic syndrome. They analyzed the effect of metabolic syndrome and its components on colon [cancer recurrence](#) and overall survival, controlling for various sociodemographic factors, tumor factors, other medical conditions and cancer treatment received.

"Metabolic syndrome as a whole had no apparent effect on colon cancer recurrence or survival," said Dr. Esnaola, who is also an attending surgeon at Fox Chase Cancer Center. "When we teased out and analyzed the effect of each of its components, however, the data told a different story."

The researchers found that among patients with early stage disease, patients with diabetes or [high blood pressure](#) had a significantly greater risk of cancer recurrence rate and death after treatment. For example, 47.7 percent of patients who did not have diabetes were still alive five years after diagnosis compared to only 41.3 percent of patients with diabetes. When the researchers looked more closely, they also found that cancer recurrence rates at five years were approximately 8 percent higher in patients with diabetes or hypertension.

In contrast, the analysis showed that patients with abnormally high levels of lipids in the blood had a lower risk of recurrence and death from colon cancer. Overall, 39 percent of patients with normal lipid levels were still alive after five years, compared to 52.7 percent of patients

with abnormal levels. Cancer recurrence rates were approximately 11 percentage points lower in patients with abnormal lipid levels.

"Although we did not have data on medication for these patients, we suspect that the higher survival and lower recurrence rates observed in patients with high lipid levels in our study group were likely due to the protective effects of statins," Dr. Esnaola said. Statins are drugs that are widely used to lower cholesterol and lipid levels and have been shown to lower the risk of developing colon cancer in people.

"To our knowledge, this is the largest study to date controlling for cancer stage and treatment that has analyzed the effect of metabolic syndrome and its components on colon cancer recurrence and survival," said Dr. Esnaola. "The adverse effects of diabetes and hypertension in early stage patients and apparent protective effect of high blood lipids observed in our cohort suggest that when it comes to metabolic syndrome and cancer outcomes, the devil is in the details."

Dr. Esnaola currently is investigating the effect of [metabolic syndrome](#) and its components on other cancer types, and plans to confirm these results in a larger set of data that contains information on cancer stage, treatment and medication. "In the interim, our results underscore the need for clinical trials to define the true benefits of (the diabetes drug) metformin and statins in [patients](#) with early stage [colon cancer](#)," he said.

Provided by Temple University Health System

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