

Adherence to oral diabetes drugs may improve survival in diabetics with colorectal cancer

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Among patients with both colorectal cancer and diabetes in Korea, those who had a high adherence to their oral diabetes medication had a significantly reduced risk of overall mortality compared with those with lower adherence, according to a study published in *Cancer Epidemiology, Biomarkers & Prevention*, a journal of the American Association for Cancer Research.

"It is estimated that only 60 percent of those with diabetes are taking their antidiabetic medications as directed," said Aesun Shin, MD, Ph.D., senior author and professor in the Department of Preventive Medicine at Seoul National University College of Medicine. "We wanted to study whether adhering to diabetes medications has an impact on survival among [patients](#) with [colorectal cancer](#)."

The association between diabetes and increased incidence of colorectal cancer is well established, noted Sunho Choe, MD, first author and resident physician in the Department of Preventive Medicine at Seoul National University College of Medicine. Further, the use of the antidiabetic [medication](#) metformin has been repeatedly shown to improve colorectal cancer survival among those with diabetes, he said. "However, it is estimated that the majority of patients take additional antidiabetic medications along with metformin, and how the combination of these medications affects the prognosis of colorectal cancer remains underexplored," he added.

"We wanted to improve upon prior studies that evaluated how the use of metformin alone impacted colorectal cancer outcomes," Shin said. "To that end, we compared survival outcomes among colorectal cancer patients who had different levels of adherence to all of their prescribed oral antidiabetics."

To conduct this retrospective cohort study, the researchers used information from the National Health Information Database, which has claims data for those who have national health insurance in Korea, from 2002 to 2016. Individuals who had diabetes and were diagnosed with colorectal cancer in this time frame were included in the study, resulting in a total study population of 33,841 participants. Patients were followed for an average of 4.7 years.

To estimate patients' adherence to their oral antidiabetic medications, the researchers used prescription data to calculate the patients' proportion of days covered (PDC), which is defined as the number of days with medications on hand divided by the number of days in a specified time interval. Adherence to prescribed injectable medications, including insulin, was not measured. The researchers categorized oral medication adherence into two groups for comparison: patients with high adherence had a PDC of at least 80 percent, while patients with low adherence had a PDC of less than 80 percent.

Overall, the researchers found that over 80 percent of patients were taking more than one oral antidiabetic medication. Further, less than 23 percent of patients were in the high-adherence category. Compared with patients with high adherence, those with low adherence to their oral antidiabetic medication had a nearly 20 percent increase in their risk of overall mortality, in both crude and adjusted models. High adherence to oral antidiabetic medication was found to have a protective effect for all colorectal cancer subgroups, with the most pronounced effect observed among patients with distal colon cancer.

"Based on our data, less than 25 percent of patients were taking their [diabetes medications](#) as prescribed, suggesting that over 75 percent of diabetic patients with colorectal cancer could benefit by adhering to these prescriptions," said Shin.

The researchers did not have access to some clinical information, including cancer stage, which is an important factor in comparing prognoses between different groups. In lieu of cancer stage, the researchers stratified the study population based on type of cancer treatment received. Patients who had early-stage disease likely received surgery alone, while patients with late-stage disease likely received palliative therapy, such as chemotherapy or radiotherapy without surgery, Shin explained.

The researchers found that patients who received surgery, surgery plus radiotherapy, or surgery plus chemotherapy had a protective benefit if they had high adherence to oral antidiabetic medications. Patients who received surgery with both radiotherapy and chemotherapy or patients who received radiotherapy or chemotherapy without surgery did not have a protective benefit even if they had a high adherence.

"Overall, our findings suggest that maintaining a high adherence to oral antidiabetic medications could improve the survival of patients with colorectal [cancer](#)," Choe said.

While PDC is one of the most frequently used methods to estimate medication [adherence](#), this method relies on the premise that patients ingest the medications as prescribed, representing a limitation of this study.

More information: *Cancer Epidemiology, Biomarkers & Prevention* (2020). [DOI: 10.1158/1055-9965.EPI-19-1455](https://doi.org/10.1158/1055-9965.EPI-19-1455)

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