



Drug Monitor

ONLINE EDITION

Metformin and Cancer Prevention

An observational study has added to a growing body of evidence that the antidiabetic drug metformin reduces cancer risk in patients with diabetes, say researchers from University of Dundee, Dundee, United Kingdom.

Their study looked at data, collected from 1994 to 2003, on 8,170 patients with type 2 diabetes. Of these patients, 4,085 began using metformin during the study period and 4,085 never used the drug but were matched to the other patients by year of diabetes diagnosis. The researchers collated such data as the patients' age at index date (the date of a first metformin prescription, either for the patient or for his or her match), sex, smoking status, mean body mass index (BMI) and hemoglobin A_{1c} (HbA_{1c}) level during the study period, use of sulfonylureas within three months of index date, use of insulin within one year of index date, and material deprivation (as determined by socioeconomic variables). The study's primary outcome measure was cancer diagnosis, and its secondary outcome

measures included all-cause mortality, cancer mortality, and diagnoses of particular cancers.

Metformin appeared to have had a positive impact on the primary outcome measure: Cancer was diagnosed in 11.6% of patients in the matched group but only 7.3% of patients in the metformin group. Patients in the metformin group had an unadjusted hazard ratio (HR) for cancer of 0.46. With adjustment for age at index date, sex, smoking status, material deprivation, mean BMI and HbA_{1c} level, and use of sulfonylureas or insulin, they had a HR of 0.63—still a significantly reduced risk, the researchers say. In addition, median time from index date to cancer diagnosis was 2.6 years in the matched group and 3.5 years in the metformin group.

Similar results were seen with regard to the secondary outcome measures. The all-cause mortality rate was 34.8% in the matched group and 14.9% in the metformin group, and the median survival time was 2.8 years in the matched group and 3.6 years in the metformin group. In addition, the cancer mortality rate was 6.1% in the matched group and 3% in

the metformin group. The metformin group's reduced risk of cancer was similar regardless of the cancer type.

Metformin may reduce cancer risk through its activation of adenosine monophosphate-activated protein kinase (AMPK), according to the researchers. They say that AMPK activation can suppress tumors and inhibit cell growth and that metformin's protective effects "could potentially be rapid and may occur at quite a late stage of cancer development."

The researchers caution, however, that their study's observational nature prevented them from controlling for all differences between the study groups. They note that patients in the metformin group were younger than patients in the matched group and may have had a lower cancer risk at baseline. Nevertheless, they say, residual confounding or unknown confounders are unlikely to account for the entire 37% reduction in cancer risk seen after multivariable adjustment. They call for a randomized trial to follow up on their results. ●

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