Does long-term metformin usage reduce gastric cancer risk?

Kim YI, Kim SY, Cho SJ, et al. Long-term metformin use reduces gastric cancer risk in type 2 diabetics without insulin treatment: A nationwide cohort study. Aliment Pharmacol Ther 2014; 39: 854-63.

The study reported by Kim YI et al. (1) will be published April 2014 issue in Alimentary Pharmacology & Therapeutics. The authors randomly selected 100,000 type 2 diabetic patients from the 2004 Korean National Health Insurance claim database, and assessed gastric cancer incidence among 39 989 patients who were regularly treated with anti-diabetic drugs and followed-up from 2004 to 2010. In total, 26,690 individuals had used metformin out of 32,978 diabetics who had not regularly used insulin, and 5855 patients had used metformin out of 7011 regular insulin users.

Patients who used metformin showed a lower incidence of gastric cancer than those who did not use metformin, in insulin non-user group. However, in patients on regular insulin, there was no difference of gastric cancer incidence according to metformin use. Duration of metformin use was found to be associated with the decrease in gastric cancer risk (p=0.003), especially in patients who used metformin for more than 3 years.

Patients with diabetes mellitus have an increased risk for developing several cancer types compare to nondiabetic subjects (2). This increased risk can be explained by insulin resistance and finally hyperinsulinemia. Diabetes is also associated with increased gastric cancer incidence (3). Metformin, is an anti-diabetic drug, reported to have anti-cancer activity in many studies. Previous epidemiologic studies reported that metformin usage is associated with reduced risk of various cancer types (4). So, in this study evaluating the effect of metformin on diabetic patients, the authors concluded that metformin use reduces the gastric cancer risk among diabetic patients who had not regularly used insulin. Patients who used metformin for greater than 3 years show the greatest decrease in gastric cancer risk.

The disease duration could not be analyzed. Therefore, they could not analyze the possible effect of diabetes duration and previous use of anti-diabetic drugs before study beginning.

Also, the cumulative doses of metformin are not available. Thus, they could not assess the dose-dependent effect of metformin on gastric cancer risk. Since all included patients are Koreans, the results may not reflect other ethnicities.

Lastly, H pylori status of the patients is not available, so, the effect of H pylori on the development of gastric cancer in both groups is unknown.

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