New study examines risks and benefits of the first line treatment for diabetes

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Although the drug metformin is considered the gold standard in the management of type 2 diabetes, a study by a group of French researchers published in this week's *PLoS Medicine* suggests that the long-term benefits of this drug compared with the risks are not clearly established—an important finding given that currently, thousands of people around the world are regularly taking metformin to help control their blood sugar levels in the belief that it also has long-lasting health benefits.

For the past 14 years, metformin has been recommended as the first-line treatment for type 2 diabetes after a landmark study (the UK Prospective Diabetes Study) reported that when combined with dietary control measures, metformin reduced death from all causes in overweight people with type 2 diabetes. However, an overlooked finding from this study was that in non-overweight people with type 2 diabetes, metformin may actually increase the risk of death.

In this new analysis, the authors led by Catherine Cornu from the Clinical Investigation Centre, in Lyon, France, analysed the data available from all relevant studies to re-evaluate the balance of the benefits versus the risks of taking metformin for type 2 diabetes.

Using information from 13 randomized controlled trials (which included a total of more than 13,000 patients) the authors found that compared to other drugs, metformin had no effect on the risk of death from all causes or on the risk of death from cardiovascular disease. Furthermore,

metformin had no significant effect on the risk of developing cardiovascular conditions such as heart attacks, strokes, and heart failure.

The authors conclude: "We cannot exclude beyond any reasonable doubt that metformin use increases or decreases the risk of all-cause mortality or cardiovascular mortality."

They explain: "The specific efficacy of metformin to prevent death or cardiovascular events has not been proven by current studies. The number and quality of available studies are insufficient."

The authors recommend: "Further studies are needed to clarify this problematic situation. Metformin may not be the best comparator [drug] for evaluating new hypoglycaemic [blood sugar-lowering] drugs. However, it is not clear which comparator [drug] has the most favourable risk/benefit ratio."

It is essential that patients taking metformin who have any concerns do not stop the drug without consulting their doctor, especially as the authors conclude that "Compared with other antidiabetic treatments, metformin may be the one with the least disadvantages. It does not induce hypoglycaemia, weight gain, and heart failure. It is also associated with a reduced rate of mortality among patients with atherothrombosis."

Provided by Public Library of Science

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