

# No significant difference found between glucose-lowering drugs for risk of death

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Among nearly 120,000 adults with type 2 diabetes, there were no significant differences in the associations between any of 9 available classes of glucose-lowering drugs (alone or in combination) and the risk of cardiovascular or all-cause mortality, according to a study appearing in the July 19 issue of *JAMA*.

Diabetes was estimated to account for approximately 1.5 million deaths in 2012, and disability (blindness, limb amputation, kidney failure, [cardiovascular events](#)) among 47 million people in 2010. Lifestyle modification and glucose-lowering drug treatment are the mainstay of therapy to prevent and delay [diabetes](#)-related complications. A large number of glucose-lowering drug classes are approved for type 2 diabetes. Randomized [clinical trials](#) of diabetes medications have been generally insufficiently powered to establish the role of drug treatment for preventing cardiovascular death.

Giovanni F.M. Strippoli, Ph.D., of the University of Bari, Italy, and Diaverum, Lund, Sweden, and colleagues conducted a systematic review with network meta-analysis to estimate the relative efficacy and safety associated with glucose-lowering drugs including insulin. The researchers identified 301 clinical trials that met criteria for inclusion in the study.

Of the trials included in the study, 177 (56,598 patients) were of drugs given as monotherapy; 109 trials (53,030 patients) of drugs added to metformin (dual therapy); and 29 trials (10,598 patients) of drugs added

to metformin and sulfonylurea (triple therapy). The researchers found no significant differences in associations between any drug class as monotherapy, dual therapy, or [triple therapy](#) with odds of cardiovascular, all-cause mortality, serious adverse events, heart attack or stroke. Considerable uncertainty about the association of [drug treatment](#) with cardiovascular mortality existed within trial evidence, largely because of few events in most available studies.

The authors note that a central finding in this meta-analysis was that despite more than 300 available clinical trials involving nearly 120,000 adults, there was limited evidence that any glucose-lowering drug stratified by coexisting treatment prolonged life expectancy or prevented cardiovascular disease.

"Metformin was associated with lower or no [significant difference](#) in HbA1C levels compared with any other drug classes. All drugs were estimated to be effective when added to metformin. These findings are consistent with American Diabetes Association recommendations for using metformin monotherapy as initial treatment for patients with type 2 diabetes and selection of additional therapies based on patient-specific considerations," the researchers write.

**More information:** *JAMA*, [DOI: 10.1001/jama.2016.9400](https://doi.org/10.1001/jama.2016.9400)

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