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Mortality risk among sulfonylureas: a systematic review and network meta-analysis

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Summary

Background

Sulfonylureas are common second-line options for management of type 2 diabetes; however, they are associated with a higher risk of cardiovascular events compared with other antidiabetic drugs. Since tissue selectivity and risk of hypoglycaemia differ among sulfonylureas, we aimed to assess whether mortality and the risk of cardiovascular events also varies.

Methods

We searched Medline and Embase from inception to June 11, 2014, to identify controlled studies reporting the risk of all-cause mortality, cardiovascular-related mortality, or myocardial infarction for at least two sulfonylureas. We examined differences in cardiovascular event risk among sulfonylureas with random effects models for direct pairwise comparisons and network meta-analyses to incorporate direct and indirect data.

Findings

14 970 (9%) of 167 327 patients in 18 studies died: 841 (4%) of 19 334 gliclazide users, 5482 (11%) of 49 389 glimepiride users, 2106 (15%) of 14 464 glipizide users, 5296 (7%) of 77 169 glibenclamide users, 7%) of 6187 tolbutamide users, and 179 (23%) of 784 chlorpropamide users. Inconsistency was



the network meta-analysis of all-cause mortality, and the relative risk of death cc < id >

glibenclamide was 0·65 (95% credible interval 0·53–0·79) for gliclazide, 0·83 (0·68–1·00) for glimepiride, 0·98 (0·80–1·19) for glipizide, 1·13 (0·90–1·42) for tolbutamide, and 1·34 (0·98–1·86) for chlorpropamide. Similar associations were noted for cardiovascular-related mortality: the relative risk compared with



Interpretation

Gliclazide and glimepiride were associated with a lower risk of all-cause and cardiovascular-related mortality compared with glibenclamide. Clinicians should consider possible differences in risk of mortality when selecting a sulfonylurea.

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