

Overview of systematic reviews of single agent treatment based on DPP-4 inhibitors for type 2 diabetes

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Abstract

Background: Nowadays, There are more and more systematic reviews/meta-analyses published to report the efficiency of dipeptidyl peptidase-4 inhibitors (DPP4-I) for the treatment of type 2 diabetes mellitus (T2DM), but the the reporting and methodological quality varied.

Objective: To evaluate the reporting and methodological quality of systematic reviews/meta-analyses (SRs/MAs), and summarize evidence of dipeptidyl peptidase-4 inhibitors (DPP4-I) for the treatment of type 2 diabetes mellitus (T2DM).

Methods: We included SRs/MAs of randomized controlled trials (RCTs) of DPP4-I for the treatment of T2DM until July 2016 by searching the Cochrane Library, PubMed, EMBASE and three Chinese databases. Two authors independently selected studies, extracted data, and evaluated the reporting and methodological qualities and the quality of evidence using the PRISMA checklist, the AMSTAR tool and the GRADE approach.

Results: Twenty-eight SRs/MAs involving a total of 292,573 participants of DPP4-I for the treatment of T2DM were included in this overview. The reporting and methodological quality of the included SRs was not high, and there are common areas for improvement. The evidence showed that DPP4-I have a more favorable effect than placebo in improving the HOMA- β and reducing the levels of HbA1c, FPG and DPP4-I were not associated with any increased risk of adverse reactions. However, DPP4-I were inferior to sulfonylureas, GLP-1 receptor agonists and placebo in reducing body weight.

Conclusions: SRs/MAs of variable quality showed the potential benefits of DPP4-I for the treatment of T2DM patients; however, higher quality studies employing checklists in the assessment of reporting and methodological qualities are required to validate this evidence.