

DSEN ABSTRACT

Dipeptidyl peptidase-4 (DPP-4) inhibitors were superior to placebo but not statistically different than intermediate-acting insulin in adults with type 2 diabetes: Results of a network meta-analysis

Summary

This review includes 10 studies evaluating the effectiveness of DPP-4 used as a third-line agent in adult patients with T2DM. DPP-4 inhibitors were superior to placebo and similarly effective to intermediate-acting insulin in reducing A1C levels. The use of DPP-4 was also associated with a reduced risk of infection when compared to placebo.

Implications

Our review is similar to previous reviews on the topic, all of which found reduced A1C for DPP-4 compared to placebo. Patients and their healthcare providers should consider these results along with patient preferences and other factors when selecting T2DM medications.

Authors: Andrea C. Tricco, Jesmin Antony, Paul A. Khan, Marco Ghassemi, Jemila S. Hamid, Huda Ashoor, Erik Blondal, Charlene Soobiah, Catherine H. Yu, Brian Hutton, Brenda Hemmelgarn, David Moher, Sumit R. Majumdar, Sharon E. Straus

For more information, please contact
Dr. Andrea Tricco
Andrea.Tricco@unityhealth.to

What is the current practice in treating type 2 diabetes?

- Type 2 diabetes mellitus (T2DM) treatment begins with lifestyle modifications and metformin.
- If glycosylated hemoglobin (A1C) levels remain elevated, second-line therapy (E.g. sulfonylurea) is introduced.
- If the addition of second-line therapy is insufficient, patients may be offered third-line agents, including dipeptidyl-peptidase-4 (DPP-4) inhibitors or immediate-acting insulin.
- We conducted a systematic review to determine the comparative safety and effectiveness of DPP-4 and intermediate-acting insulin for adults with T2DM.

How was the study conducted?

- We included studies of patients with T2DM who failed treatment with first- and second-line agents and were currently receiving a third-line agent.
- The primary outcome of interest was A1C level, but we were also interested in capturing harms outcomes (i.e., overall harms, treatment-related harms, weight gain, severe hypoglycemia, cardiovascular disease, and mortality).
- Screening, data abstraction and quality appraisal of relevant studies were conducted by two independent reviewers.
- A network meta-analysis was used to assess the comparative effectiveness of interventions that may or may not have been compared directly.
- The outcomes were selected and full methods were published a priori.

What did the study find?

- We identified 10 relevant studies (5 unpublished), which included a total of 2,967 adults with T2DM.
- Network meta-analysis showed that DPP-4 inhibitors significantly reduced A1C levels when compared to placebo.
- No clinically significant differences in A1C were observed when DPP-4 was compared to intermediate-acting insulin.
- DPP-4 was also associated with patients experiencing fewer infections, but no other differences in harms were observed.

This research was funded by CIHR – Drug Safety and Effectiveness Network and conducted by investigators affiliated with the following institutions:



Link to publications: [Tricco et al, 2014](#), [Tricco et al, 2013](#).