

# DSEN ABSTRACT

## SGLT2 Inhibitors and the Risk of Major Adverse Cardiovascular Events

*A study conducted by the Canadian Network for Observational Drug Effect Studies (CNODES)*

### Summary

- SGLT2 inhibitor use was associated with a decreased risk of serious cardiovascular events compared with the use of DPP-4 inhibitors among patients with type 2 diabetes.

### Key messages

- This study suggests that SGLT2 inhibitors offer cardiovascular benefits among patients with type 2 diabetes in a real-world setting.
- With consistent results across individual SGLT2 inhibitors, this study suggests a class effect regarding the cardiovascular benefits of SGLT2 inhibitors.
- Additional studies with longer duration of follow-up are needed to determine if these benefits persist long term.

### Project Lead & Team

- Pierre Ernst, MD, MSc, FRCP(c)
- Team members [available here](#)

### Link to publication

- Filion et al. BMJ. 2020. [doi: 10.1136/bmj.m3342](https://doi.org/10.1136/bmj.m3342).

### What is the issue?

- Sodium-glucose cotransporter 2 (SGLT2) inhibitors are a new class of drugs used as second- or third-line treatment for type 2 diabetes.
- Randomized controlled trials have demonstrated that SGLT2 inhibitors reduce the risk of major adverse cardiovascular events (MACE) and heart failure among patients with type 2 diabetes. However, their effectiveness in a real-world setting remains uncertain.

### What was the aim of the study?

- This study, conducted by the Canadian Network for Observational Drug Effect Studies (CNODES), evaluated the risk of serious cardiovascular events associated with the use of SGLT2 inhibitors compared to the use of dipeptidyl peptidase-4 (DPP-4) inhibitors among patients with type 2 diabetes.

### How was the study conducted?

- CNODES investigators conducted eight population-based cohort studies with health records of over 400,000 patients with type 2 diabetes from seven Canadian provinces and the United Kingdom.
- Patients aged 18 years and older who received a prescription for a SGLT2 inhibitor between 2013 and 2018 were matched to those who received a prescription for a DPP-4 inhibitor (another class of antidiabetic drugs used as second- or third-line treatment).
- The risk of MACE (a composite endpoint of myocardial infarction, ischemic stroke or cardiovascular death), all-cause mortality, and heart failure were compared in users of SGLT2 inhibitors versus users of DPP-4 inhibitors. Results were combined across studies using a statistical approach called meta-analysis.

### What did the study find?

- Over a mean follow-up of 11 months, SGLT2 inhibitors were associated with a relative decrease of 24% in the risk of MACE compared with DPP-4 inhibitors. Results were consistent for the three SGLT2 inhibitors (canagliflozin, dapagliflozin, empagliflozin) available during the study period.
- Reductions were also observed for the individual endpoints of MACE, all-cause mortality, and heart failure, with more modest benefits for ischemic stroke.
- While these findings suggest that the use of SGLT2 inhibitors is beneficial among patients with type 2 diabetes in a real-world setting, additional studies are needed to determine if these benefits persist long term.

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