Synthēsis
Peer-reviewed, diamond open-access journal for concise, transparent and reproducible evidence synthesis across medicine

Vol. 5 · No. 1 · 2026
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ISSN: in application

METHODS NOTE · Peer-reviewed · Published

SGLT2 Inhibitors and Heart Failure Outcomes Across the Ejection Fraction Spectrum; a Systematic Review and Meta-Analysis

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Methods Note · Volume 5
Published 2026-06-06 · Diamond open access · CC BY 4.0
Article 94 · Volume 5 · Published 2026-06-06 · DOI: not assigned

KEY WORDS SGLT2 Inhibitors; Heart Failure; Ejection Fraction

Abstract

The use of SGLT2 inhibitors has been established as an effective management for heart failure. However, there is still hesitation concerning the effectiveness of SGLT2 inhibitors among patients with heart failure of different ejection fractions. This study analysed nine randomized control trials involving 71,553 patients with heart failure or increased risk of cardiovascular disease, obtained from MEDLINE and Cochrane CENTRAL up to January 2026.

Pooled treatment effects were calculated using the random-effects model with log-hazard-ratio scale using the restricted maximum likelihood estimation method and the Hartung-Knapp adjustment. The use of SGLT2 inhibitors led to a 23% reduction in heart failure or cardiovascular death (HR 0.77, 95% CI 0.72 - 0.83), irrespective of whether the patient had heart failure due to reduced or preserved ejection fraction. Findings of the analysis were found to be consistent with the sensitivity analysis that included leave-one-out test and small study bias adjustment.

The significance of these findings is quite important for Ugandan medical facilities such as the Uganda Heart Institute considering that heart failure is common in Uganda, while advanced management tools are not easily accessible.

HOW TO CITE

John Kokas Obwiin. SGLT2 Inhibitors and Heart Failure Outcomes Across the Ejection Fraction Spectrum; a Systematic Review and Meta-Analysis. Synthēsis. 2026;5(1). Article 94. Available at https://synthesis-medicine.org/index.php/journal/article/view/94. Licensed under CC BY 4.0. DOI: not assigned.

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