

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

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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.

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