# Clinical Outcomes of Pharmacological Therapies for Heart Failure in Black vs. White Populations: A Meta-analysis of Randomized Controlled Trials of Heart Failure Treatments

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## OBJECTIVES

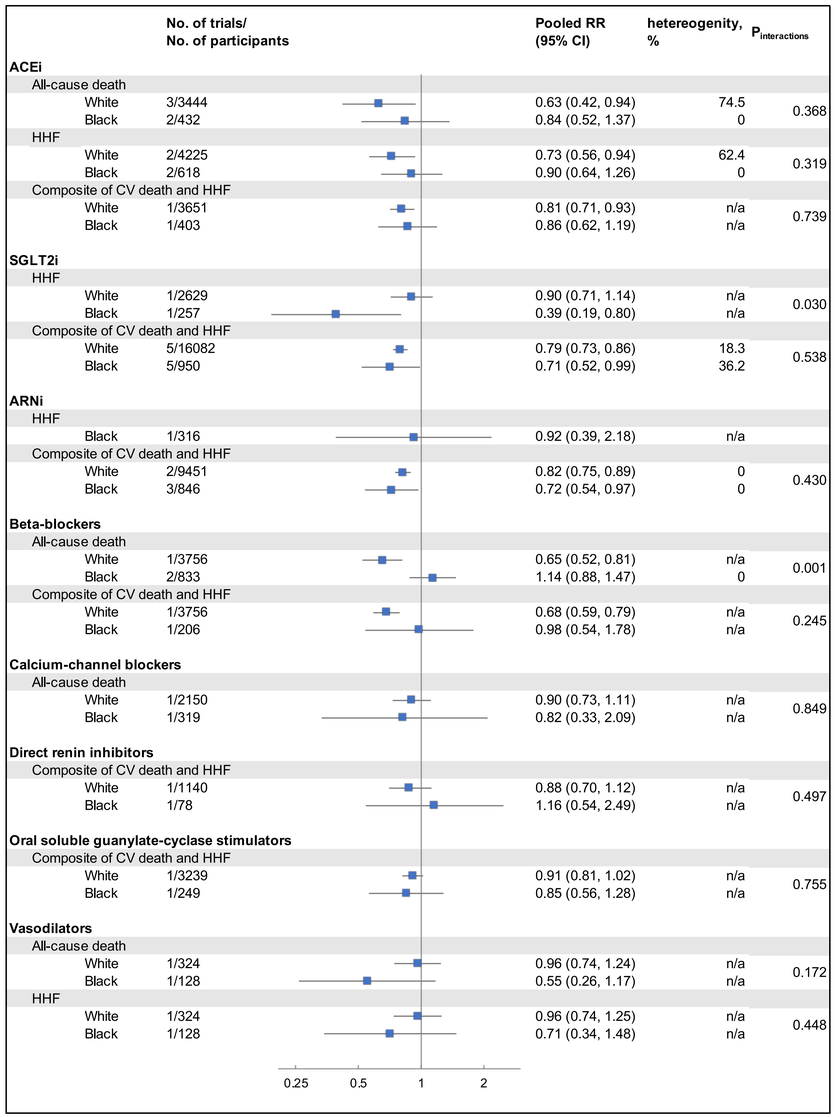
- Black patients have a disproportionately high prevalence of heart failure (HF) and HF-related cardiovascular (CV) death compared to other racial groups. And the Black population has been vastly under-represented in most randomized clinical trials (RCT) of HF medications.
- It remains unclear whether HF medications are comparably effective in the Black population vs. the White population.
- We conducted a meta-analysis of RCT to evaluate the effect of different pharmacological therapies for HF between the Black vs. White population.

## METHODS

- **Data Sources:** PubMed, EMBASE, and CENTRAL from inception to February 2023.
- **Study Selection:** RCT of HF pharmacological therapies with explicit strata of Black or White adults in the primary or secondary analysis.
- **Outcomes:** the composite of CV death and hospitalization for heart failure (HHF), 2) HHF, and 3) all-cause mortality.
- **Data analysis:** Within each race (White and Black), we calculated the pooled risk ratio (RR) with a 95% confidence interval (CI) of different pharmacological therapies using random-effects models. Within each pharmacological therapies, a meta regression was performed to assess the differences in the treatment effect by race.

## RESULTS

**Fig 1. Summarized results from the meta-analysis**




- We included 19 RCT reporting eight pharmacological therapies for HF, involving of 40,287 trial participants (White and Black patients).
- There was no significant difference between the Black and White groups for using sacubitril/valsartan, angiotensin-converting enzyme inhibitors, calcium-channel blockers, direct renin inhibitors, oral soluble guanylate cyclase, or vasodilators.
- Sodium-glucose cotransporter-2 inhibitors (SGLT2i) had a different effect in HHF across the White and Black patients ($P_{interaction}$ =.030), with a better treatment effect observed in the Black (RR 0.39, 95% CI 0.19 to 0.80) compared to the White group (0.90, 0.71 to 1.14).
- Beta-blockers had a better treatment effect in the White (0.65, 0.52 to 0.81) compared to the Black group (1.14, 0.88 to 1.47) regarding the all-cause mortality outcome ($P_{interaction}$=.001).

## CONCLUSIONS

- Black individuals with HF appeared to obtain a greater benefit of HHF risk reduction from SGLT2i and less benefit for mortality from beta-blockers compared to their White counterparts.
- Our data support the prioritization of SGLT2i among Black individuals with HF to improve long-term health outcomes. However, due to the nature and limitations of the meta-analysis, further research in real-world settings is needed to confirm our findings.

## DISCLOSURE

None