# Pengaruh Penambahan Dapagliflozin terhadap Kadar *soluble Suppresion of Tumorigenesis 2* (sST2) pada Pasien Gagal Jantung Dekompensasi Akut

Muhamad Sofan Dhani[1], Ilham Uddin[1], Muhammad Fauziar Ahnaf[1], Suhartono[1]

[1] *Department of Cardiology and Vascular, Faculty of Medicine, Universitas Diponegoro, Semarang, Indonesia*

## ABSTRAK

**Latar belakang:** Berbagai studi besar telah mengkonfirmasi bahwa peningkatan biomarker inflamasi berhubungan terhadap peningkatan angka rehospitalisasi dan mortalitas pada pasien dengan gagal jantung dekompensasi akut (GJDA), sehingga terapi yang menargetkan penghambatan inflamasi steril pada GJDA menjadi penting. Biomarker *soluble suppression of tumorigenicity-2* (sST2) merupakan biomarker inflamasi yang telah diketahui memiliki nilai prognostik yang baik pada pasien gagal jantung. Dapagliflozin sebagai SGLT2 inhibitor diduga mampu menurunkan kadar sST2.

**Metode:** Uji klinis acak, *double-blind*, terkontrol plasebo ini melibatkan 62 pasien GJDA yang dirawat di RSUP dr. Kariadi Semarang dan dibagi menjadi kelompok dapagliflozin 10 mg/hari (n=33) dan plasebo (n=29) di samping terapi standar. Kadar sST2 diukur pada pre-perlakuan, *pre-discharge*, dan 30 hari pasca perlakuan. Luaran utama adalah perubahan (Δ) sST2 dibanding nilai awal saat periode hospitalisasi dan periode pasca hospitalisasi yang dibandingkan antar kelompok menggunakan uji Mann-Whitney.

**Hasil:** Median sST2 awal serupa antara plasebo dan dapagliflozin (32,40 vs 29,50 ng/mL; p=0,452). Penurunan ΔsST2 saat *pre-discharge* tidak berbeda bermakna antara plasebo dan dapagliflozin (median -2,90 vs -3,70 ng/mL; p=0,972). Sebaliknya, ΔsST2 pada periode pasca hospitalisasi menunjukkan penurunan yang bermakna pada kelompok dapagliflozin dibanding plasebo (median -2,70 vs -0,30 ng/mL; p=0,047), menandakan efek tambahan dapagliflozin pada fase pasca-hospitalisasi.

**Kesimpulan:** Dapagliflozin memberikan penurunan sST2 yang lebih besar dan signifikan pada periode pasca hospitalisasi dibanding plasebo, sementara penurunan kadar sST2 pada periode hospitalisasi cenderung lebih besar namun tidak signifikan.

Kata Kunci : Gagal Jantung Dekompensasi Akut, Dapagliflozin, sST2

# The Effect of Adding Dapagliflozin on Soluble Suppression of Tumorigenesis 2 (sST2) Levels in Patients with Acute Decompensated Heart Failure

Muhamad Sofan Dhani[1], Ilham Uddin[1], Muhammad Fauziar Ahnaf[1], Suhartono[1]

[1] *Department of Cardiology and Vascular, Faculty of Medicine, Universitas Diponegoro, Semarang, Indonesia*

## *ABSTRACT*

***Background:*** *Large clinical studies have confirmed that elevated inflammatory biomarkers are associated with increased rehospitalization and mortality in patients with acute decompensated heart failure (ADHF), making therapies that target sterile inflammation in ADHF clinically important. Soluble suppression of tumorigenicity-2 (sST2) is an inflammatory biomarker with well-established prognostic value in heart failure, and dapagliflozin, a sodium–glucose cotransporter-2 (SGLT2) inhibitor, has been suggested to reduce sST2 levels.*

***Methods:*** *This randomized, double-blind, placebo-controlled clinical trial enrolled 62 patients with ADHF hospitalized at Dr. Kariadi General Hospital, Semarang, who were assigned to receive dapagliflozin 10 mg once daily (n=33) or placebo (n=29) in addition to standard therapy. sST2 levels were measured at baseline (pre-treatment), at pre-discharge, and 30 days after treatment initiation. The primary outcome was the change (Δ) in sST2 from baseline during the in-hospital period, over the total 30-day period, and during the post-hospitalization period, compared between groups using the Mann–Whitney test.*

***Results:*** *Median baseline sST2 levels were similar between the placebo and dapagliflozin groups (32.40 vs 29.50 ng/mL; p=0.452). The reduction in ΔsST2 at pre-discharge did not differ significantly between placebo and dapagliflozin (median −2.90 vs −3.70 ng/mL; p=0.972). In contrast, ΔsST2 during the post-hospitalization period showed a significantly greater reduction in the dapagliflozin group compared with placebo (median −2.70 vs −0.30 ng/mL; p=0.047), indicating an additional post-discharge benefit of dapagliflozin.*

***Conclusions:*** *Dapagliflozin resulted a greater and statistically significant reduction in sST2 during the post-hospitalization period compared with placebo, whereas sST2 reductions during the in-hospital phase period were numerically greater but not statistically significant.*

***Keyword :*** *Acute Decompensated Heart Failure, Dapagliflozin, sST2*