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Antihypertensive Properties of Dapagliflozin in Diabetic Patients: Systematic Review and Meta-Analysis

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Objectives: Hypertension is a common comorbidity of diabetes mellitus. Numerous studies have shown the beneficial effect of SGLT-2 inhibitor in diabetic patients. Dapagliflozin is a selective SGLT-2 inhibitor which shown minimal natriuresis and osmotic diuresis properties. These two conditions can lead to a reduction in blood pressure by SGLT-2 treatment. The aim of this study was to assess the effect of SGLT-2 inhibitor, dapagliflozin in diabetic patient's blood pressure based on randomized controlled trial

Methods: The literature search was conducted using the PubMed database until November 2019 to find a randomized, placebo-controlled trial, which assessed administration of 10 mg once daily dapagliflozin effect on seated blood pressure in diabetic patients without preexisted complication. Treatment effects were considered as mean changes and standard deviation (SD) difference from the baseline. We performed data analysis using RevMan 5.3

Results: A total of 18 trials with 6.198 participants were included in the meta-analysis. The results suggested that dapagliflozin has significant effect reducing systolic blood pressure (-3.17 mmHg, 95% CI: -3.87 to -2.46; $p < 0.00001$) and significant reduction of diastolic blood pressure (-0.99 mmHg, 95% CI: -1.64 to -0.34; $p = 0.003$)

Conclusions: Dapagliflozin can reduce the systolic and diastolic blood pressure of patients with diabetes mellitus. Early initiation of dapagliflozin may benefit diabetic patients to achieve optimal blood pressure. However, further studies with larger scale and better designs are needed to confirm the results and eliminate the bias

Figure 1. Meta-analysis flow chart study inclusion

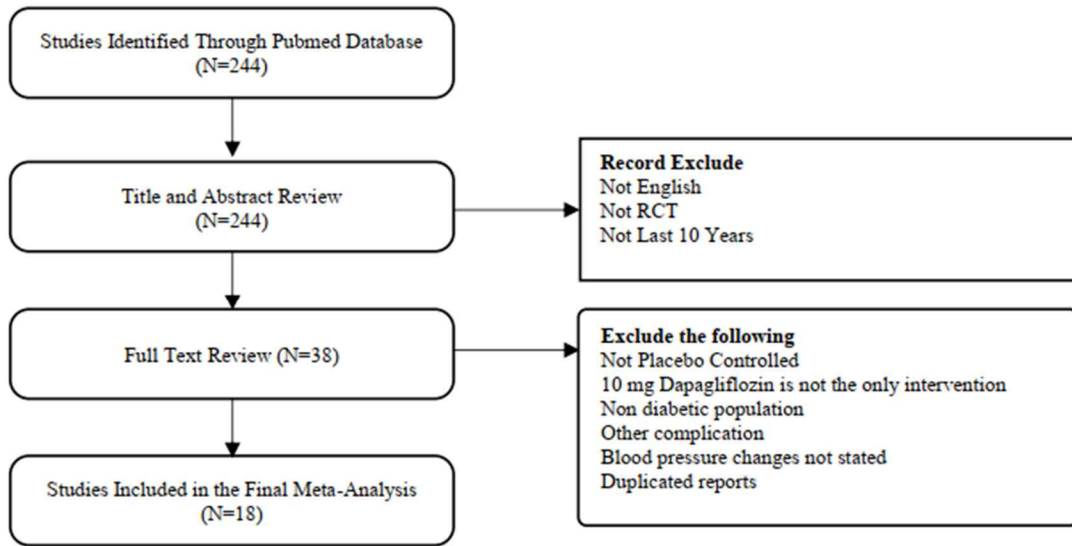


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Figure 2. Forest plot results.

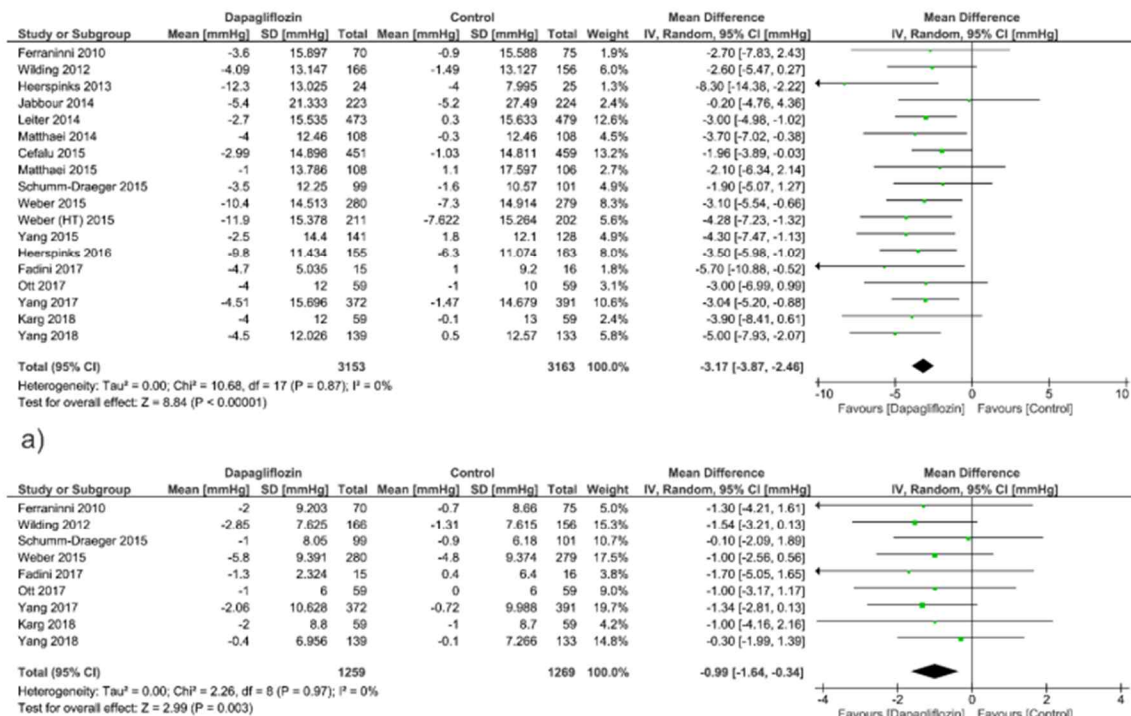


Figure 2. Forest plot results. a) Systolic Blood Pressure (mmHg). b) Diastolic Blood Pressure (mmHg)