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Efficacy and Safety of Ranolazine as an Oral Antidiabetic Agent in Patients with Type 2 Diabetes Mellitus: A Meta-Analysis

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BACKGROUND
Ranolazine is an anti anginal drug that mediates its effects by inhibition of cardiac late sodium current. Although not yet approved for treatment of type 2 diabetes mellitus (T2DM), several clinical trials have shown that ranolazine was associated with reduction in HbA1c.

OBJECTIVE
To determine the efficacy and safety of ranolazine as an oral antidiabetic agent in patients with T2DM.

METHODS
A meta-analysis was conducted on clinical trials of ranolazine as oral anti-diabetic agent in patients with T2DM using RevMan 5.3 software. Of the fifty (50) articles identified, seven (7) articles met eligibility criteria. Six (6) randomized controlled trials involving 1,802 patients were included.

RESULTS
Compared to placebo, ranolazine significantly reduced HbA1c by 0.36% [−0.45, −0.28] (P < 0. 00001) and fasting glucagon by 3.56 pg/mL [−4.43, -2.69] (P <0.00001). No significant change was noted in fasting plasma glucose [−60, 0.31] (P=0.54), fasting insulin [−1.63, 0.60] (P =0.36), and fasting C-peptide [−0.17, 0.09] (P=0.57). Furthermore, no significant difference was noted for hypoglycemic episodes with ranolazine versus placebo [0.87, 3.42] (P=0.12).

CONCLUSION
This meta-analysis demonstrates that ranolazine can modestly reduce HbA1c and fasting glucagon, without increasing hypoglycemic events among patients with T2DM. This may be particularly beneficial among patients with T2DM suffering from angina.