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1: Arch Intern Med. 2004 Oct 25;164(19):2097-104.

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A meta-analysis comparing the effect of thiazolidinediones on cardiovascular risk factors.

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BACKGROUND: In patients with type 2 diabetes mellitus, all therapeutic options should be evaluated for their effect on cardiovascular risk factors, in addition to glycemic control. We conducted a meta-analysis of randomized controlled trials of pioglitazone hydrochloride and rosiglitazone maleate in patients with type 2 diabetes to evaluate their effect on glycemic control, lipids, blood pressure, and weight. **METHODS:** Randomized controlled trials of patients with type 2 diabetes that compared pioglitazone or rosiglitazone with placebo for 12 weeks were included. Primary analysis was to compare thiazolidinediones with placebo. Secondary analysis was to identify whether treatment with pioglitazone differed from rosiglitazone in any outcomes. We calculated weighted mean differences and 95% confidence intervals. **RESULTS:** Twenty-three randomized controlled trials were identified. Both thiazolidinediones demonstrated similar hemoglobin A(1c) level decreases of 1.0% to 1.5% and similar increases in body weight of approximately 3.0 kg. Pioglitazone significantly lowered triglyceride level (-40 mg/dL [-0.45 mmol/L]; 95% confidence interval [CI], -53 to -26 mg/dL [-0.60 to -0.29 mmol/L]), increased high-density lipoprotein cholesterol (HDL-C) level (+4.6 mg/dL [+0.12 mmol/L]; 95% CI, 3.6 to 5.5 mg/dL [0.09 to 0.14 mmol/L]), and showed neutral effect on low-density lipoprotein cholesterol (LDL-C) and total cholesterol levels. Rosiglitazone significantly increased HDL-C level (+2.7 mg/dL [+0.07 mmol/L]; 95% CI, 2.0 to 3.4 mg/dL [0.05 to 0.09 mmol/L]), but increased LDL-C level (+15 mg/dL [+0.39 mmol/L]; 95% CI, 13 to 17 mg/dL [0.34 to 0.44 mmol/L]), total cholesterol level (+21 mg/dL [+0.54 mmol/L]; 95% CI, 18 to 25 mg/dL [0.47 to 0.65 mmol/L]), and demonstrated neutral effect on triglyceride level (-1.1 mg/dL [-0.12 mmol/L]; 95% CI, -1.4 to 12 mg/dL [-0.16 to 0.14 mmol/L]). No data were available on pioglitazone and blood pressure. Rosiglitazone had a neutral effect on systolic (-0.7 mm Hg; 95% CI, -2.6 to 1.1 mm Hg) and diastolic (-0.8 mm Hg; 95% CI, -1.8 to 0.3) blood pressure. **CONCLUSIONS:** Thiazolidinediones have similar effects on glycemic control and body weight. Pioglitazone produced a more favorable lipid profile. Head-to-head comparative trials as well as longer-term cardiovascular outcome studies

are needed to determine whether there are differences in efficacy between the 2 thiazolidinediones.

PMID: 15505122 [PubMed - in process]

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