

Effects of Ramipril and Rosiglitazone on Cardiovascular and Renal Outcomes in People With Impaired Glucose Tolerance or Impaired Fasting Glucose: results of the Diabetes REduction Assessment with ramipril and rosiglitazone Medication (DREAM) trial

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OBJECTIVE—Impaired glucose tolerance (IGT) and/or impaired fasting glucose (IFG) are risk factors for diabetes, cardiovascular disease (CVD), and kidney disease. We determined the effects of ramipril and rosiglitazone on combined and individual CVD and renal outcomes in people with IGT and/or IFG in the Diabetes REduction Assessment With ramipril and rosiglitazone Medication (DREAM) trial.

RESEARCH DESIGN AND METHODS—A total of 5,269 people aged ≥ 30 years, with IGT and/or IFG without known CVD or renal insufficiency, were randomized to 15 mg/day ramipril versus placebo and 8 mg/day rosiglitazone versus placebo. A composite cardiorenal outcome and its CVD and renal components were assessed during the 3-year follow-up.

RESULTS—Compared with placebo, neither ramipril (15.7% [412 of 2,623] vs. 16.0% [424 of 2,646]; hazard ratio [HR] 0.98 [95% CI 0.84–1.13]; $P = 0.75$) nor rosiglitazone (15.0% [394 of 2,635] vs. 16.8% [442 of 2,634]; 0.87 [0.75–1.01]; $P = 0.07$) reduced the risk of the cardiorenal composite outcome. Ramipril had no impact on the CVD and renal components. Rosiglitazone increased heart failure (0.53 vs. 0.08%; HR 7.04 [95% CI 1.60–31.0]; $P = 0.01$) but reduced the risk of the renal component (0.80 [0.68–0.93]; $P = 0.005$); prevention of diabetes was independently associated with prevention of the renal component ($P < 0.001$).

CONCLUSIONS—Ramipril did not alter the cardiorenal outcome or its components. Rosiglitazone, which reduced diabetes, also reduced the development of renal disease but not the cardiorenal outcome and increased the risk of heart failure.

Abbreviations: CVD, cardiovascular disease • DREAM, Diabetes REduction Assessment with ramipril and rosiglitazone Medication • ECG, electrocardiogram • eGFR, estimated glomerular filtration rate • HOPE, Heart Outcomes Prevention Evaluation • IFG, impaired fasting glucose • IGT, impaired glucose tolerance • MI, myocardial infarction