Rationale and Design of the Trial Evaluating Cardiovascular Outcomes with Sitagliptin (TECOS)

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The purpose of TECOS is to evaluate the potential impact of sitagliptin, a dipeptidyl peptidase-4 inhibitor, on cardiovascular outcomes and clinical safety in a multinational, randomized, double-blind, placebo-controlled trial.
TECOS is a pragmatic, academically run trial that will recruit approximately 14,000 patients with type 2 diabetes who are ≥50 years old, have documented cardiovascular disease, and who have an HbA1c ≥6.5 and ≤8% on stable doses of any one or two of three oral antihyperglycemic agents (metformin, sulfonylurea, pioglitazone). A minimum of 2000 patients will be on metformin monotherapy and 2000 patients on pioglitazone (alone or in combination). Randomization will be 1:1 to the addition of double-blind sitagliptin (100 mg/day) or matching placebo to a patient's existing diabetes care regimen in a usual care setting, with the aim of achieving glycemic equipoise in the two groups. Patients with moderate, but not severe, renal insufficiency can be included but will be given reduced doses of sitagliptin. Patient accrual, which began in December 2008, will take 2 years in around 30 countries. The primary endpoint will be the time to the first occurrence of a composite cardiovascular outcome (cardiovascular death, nonfatal myocardial infarction, nonfatal stroke or hospitalization for unstable angina). Cardiovascular events will be adjudicated by an independent committee, blinded to study therapy. In this non-inferiority trial, 1300 confirmed primary endpoints are needed to provide 90% power to yield the upper limit of the adjusted 95% CI for a hazard ratio <1.20 at a one-sided α level of 0.025. Follow up will be four monthly in the first year, then twice yearly for a minimum of four years or until 1300 primary endpoints have occurred.
TECOS will assess the impact of sitagliptin on cardiovascular outcomes when used in addition to usual diabetes care.