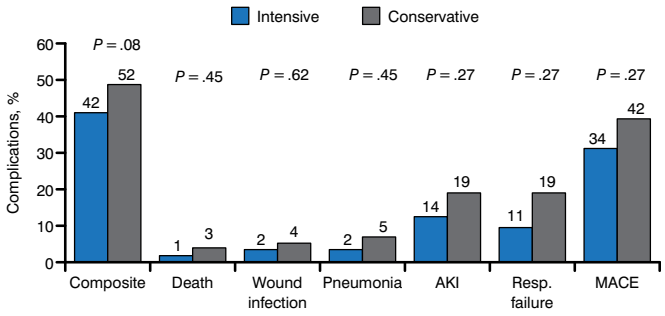
Figure 1. Comparison of Intensive and Conservative Glucose Control on Perioperative Complications



AKI, acute kidney injury; Resp., respiratory; MACE, major cardiovascular events.
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failure, wound infections, or major cardiovascular events (MACEs) (P=.08).

Composite of complications: death, wound infection, pneumonia, AKI, respiratory failure, and MACEs. Low rates of hypoglycemia were achieved using the computer algorithm to guide insulin infusion, and no patients had a BG < 40 mg/dL (2.2 mmol/L).

In summary, this study found that intensive glucose control in patients with hyperglycemia undergoing CABG surgery that targeted a BG of 100 to 140 mg/dL during the perioperative period did not significantly reduce complications or mortality compared with a less strict target of 141 to 180 mg/dL.

Effects of PDE-5 Inhibition in Patients With T2DM

Written by Maria Vinall

Tadalafil is a phosphodiesterase-5 (PDE-5) inhibitor used in the treatment of erectile dysfunction and pulmonary hypertension, and it was shown in a small study to increase forearm glucose uptake (FGU) and capillary recruitment in postmenopausal women with type 2 diabetes mellitus (T2DM) [Jansson PA et al. *Díabetologia*. 2010]. Lovisa Sjögren, MD, University of Gothenburg, Gothenburg, Sweden, presented results from the Effects of PDE-5 Inhibition on Postprandial Hyperglycemia in Type 2 Diabetes study [NCT01238224], which investigated the effect of tadalafil on postprandial hyperglycemia and circulating levels of proinflammatory markers in patients with T2DM after a mixed meal. The final results of this study indicate that tadalafil 20 mg may induce positive metabolic and vascular effects in the postprandial state in patients with T2DM.

Patients with obesity, insulin resistance, and T2DM have postprandial hyperglycemia and impaired postprandial microvascular response. Endothelial dysfunction, characterized by decreased production and release of nitric oxide (NO) into the vessels, and increased amounts of endothelin-1 (ET-1), a vasoconstricting proinflammatory peptide, are also common.

This was a randomized, double-blind, placebo-controlled, investigator-initiated trial that included 26 patients with T2DM (duration 3 months to 10 years) who were aged 40 to 70 years (men) or 50 to 70 years (women), with body mass indexes (BMIs) between 27 and 40 kg/m^2 and HbA_{1c} levels < 60 mmol/mol. After an overnight fast, patients were randomized to either tadalafil 20 mg (n = 14) or placebo (n = 12) 30 minutes prior to a mixed meal containing 47% fat, 7% protein, and 46% carbohydrates (786 kcal). All patients underwent continuous FGU, muscle microdialysis, and blood sampling for 5 hours. The objective of this study was to assess a treatment strategy in which NO signaling is amplified through PDE-5 inhibition.

Participants had a mean age of 61 years and a mean BMI of 30 kg/m^2, and the majority were men (17 of 26). Patients in the tadalafil group had significantly longer disease duration (60 months) compared with the placebo group (24 months) (P<.05). Circulating levels of glucose and insulin did not differ between the 2 groups before, during, or after the meal; there was also no difference for triglycerides or free fatty acids. The incremental areas under the curve (IAUC) for FGU, capillary recruitment, forearm blood flow (FBF), and ET-1 did not differ significantly, although there was a tendency toward an increased IAUC with the tadalafil group in the first 3 measures.

Because angiotensin-converting enzyme (ACE) inhibitors are known to have positive effects on glucose metabolism, the investigators conducted a post hoc analysis excluding patients taking this family of drugs, resulting in a subgroup of 20 patients who were not on ACE inhibitors (10 from the tadalafil group and 10 from the placebo group). Circulating glucose, triglyceride, free fatty acid levels, and insulin peak did not differ significantly between the 2 groups. Patients not on ACE inhibitors did, however, have a significant increase in the IAUCs for capillary recruitment, FGU, and FBF, and a decrease in ET-1 (P<.05).