

## Abstract

Title of Research: Sitagliptin therapy added to standard blood glucose management in postoperative cardiac surgery patients with Type II diabetes mellitus

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Sitagliptin is an oral antidiabetic agent indicated as monotherapy for the treatment of Type II diabetes mellitus (DM) or as adjunctive therapy in patients taking other oral antidiabetic medications. It works by inhibiting an enzyme known as dipeptidyl-peptidase IV (DPP-4) which results in prolonging the action of incretins such as glucagon-like peptide-1 (GLP-1) thus increasing insulin secretion and decreasing glucagon concentration in a glucose dependent manner.

Sitagliptin is an ideal agent to evaluate in the acute care setting where blood glucose control is often lost due to acute illness or the inability to start regular home antidiabetic medications. For example, administration of sitagliptin to postoperative cardiac surgery patients may allow better control of serum blood glucose measurements in the postoperative setting when it may not be possible to start other agents due to fear of hypoglycemia (sulfonylureas) or renal dysfunction (metformin). Tight control of blood glucose in diabetic cardiac surgery patients improves perioperative outcomes such as decreasing ischemic events, wound complications and prolonging survival.

This is a single center, prospective, randomized, double blind placebo controlled pilot study. A total of 126 who have Type II diabetes mellitus who are recovering from cardiac surgery will be recruited to participate in this study which will occur during the postoperative inpatient acute care stay in the post-intensive care unit (ICU) setting. The primary objective is to determine if sitagliptin added to standard postoperative blood glucose management will improve mean overall blood glucose control in the first four days after transfer to the floor from compared to a control group. Patients participating in this research will be randomized to one of two study groups. The control group will consist of patients who receive standard blood glucose management which includes sliding scale insulin with the addition of home medications when clinical indicated and ordered by the physician. The treatment group will consist of standard blood glucose management practice with the addition of once daily sitagliptin therapy starting at time of transfer out of the ICU.

Sitagliptin has a novel mechanism of action which complements other blood sugar lowering modalities. It also possesses a safe adverse effect and drug interaction profile which makes it ideal to examine in the inpatient acute care setting. No research has yet examined the potential role sitagliptin may have in the management of blood glucose measurements in the acute care setting. Documentation of efficacy would provide physicians with additional options to control of elevated blood glucose values during the postoperative recovery period and potentially decrease reliance on sliding scale insulin therapy.