Study of alternative drug to insulin for the treatment of high blood glucose concentration in cardiac surgery patients

No registrations found.

Ethical review	Positive opinion
Status	Recruitment stopped
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON29585

Source
Nationaal Trial Register

Brief title
GLOBE trial

Health condition

Diabetes Mellitus
Hyperglycaemia
Cardiac Surgery

Sponsors and support

Primary sponsor: Academic Medical Center Amsterdam
Source(s) of monetary or material Support: Novo Nordisk A/S Denmark

Intervention

Outcome measures

Primary outcome

The main outcome measure is the proportion of patients needing insulin therapy in the

perioperative period (morning of surgery until transfer to the Intensive Care Unit)

Secondary outcome

We will assess the following secondary outcome parameters:

• Total perioperative insulin use (IU/day)

• Number of insulin administrations

• Composite postoperative complications*

• Glucose control in the perioperative period, as assessed by the mean perioperative glucose

• Number of perioperative hyperglycaemic events (>11 mmol l-1)

• Number of perioperative of hypoglycaemic events (<4 mmol l-1)

• Number of severe hypoglycaemic events (<2.3 mmol l-1)

• Proportion of patients with postoperative nausea and vomiting

Study description

Background summary

Rationale: In the vast majority of patients undergoing cardiac surgery, hyperglycaemia develops during and after surgery. There is a clear association between hyperglycaemia and postoperative complications. The implementation of perioperative insulin treatment is however hampered by risk of hypoglycaemia. Glucagon Like Peptide 1 (GLP-1) therapy is a promising treatment for perioperative hyperglycaemia during cardiac surgery. It has the potential of lowering glucose and reducing the need for insulin therapy, thereby lowering the risk of iatrogenic hypoglycaemia.

Objective: We hypothesize that liraglutide treatment (a GLP-1 analogue), initiated before cardiac surgery, is effective in lowering the number of patients needing perioperative insulin adjustments and reducing the total amount of insulin needed in the perioperative period when aiming for a moderate glucose target of < 8 mmol l-1.

Study design: We will perform a randomized double blind placebo controlled trial in 4 Dutch cardiac surgery centres.

Study population: We will include patients scheduled for elective cardiac surgery, without diabetes mellitus or diabetes mellitus type 2 with a maximal pre-admission total daily insulin

treatment dose of ≤0.5 IU kg-1.

Intervention: Patients will be randomized (1:1) to perioperative liraglutide treatment or placebo. Liraglutide or placebo 0.6 mg subcutaneously (sc) the day before surgery and 1.2 mg sc on the day of surgery will be administered. In both arms the glucose target range is <8 mmol l-1.

Main study parameters/endpoints: The main study endpoint is reduction in the number of patients needing perioperative insulin treatment when aiming for plasma glucose < 8 mmol l-1.

Nature and extent of the burden and risks associated with participation, benefit and group relatedness: For study purposes, an additional 18.4 ml of blood will be drawn. This will be taken from intravenous or intra-arterial catheters that have been inserted for clinical purposes. Common adverse events with liraglutide treatment are related to the gastrointestinal system, nausea and diarrhoea as reported most frequently. In addition, there is a small risk of hypoglycaemia, which is minimized by frequent glucose monitoring. All adverse events are mostly mild and the drop-out rate from clinical trials due to adverse events has been low. Patient might benefit from this intervention by improved perioperative glucose control without insulin. This reduces hypoglycaemia risk and might reduce other postoperative complications. In general this study will provide more insight in the effect of liraglutide as a glucose-lowering agent to prevent insulin use in the perioperative setting.

Study objective

We hypothesize that liraglutide treatment, initiated before cardiac surgery, is effective in lowering the number of patients needing perioperative insulin adjustments and reducing the total amount of insulin needed in the perioperative period when aiming for a moderate glucose target of < 8 mmol l-1

Study design

Inclusion and informed consent: preoperative clinic.

Randomization: day before surgery

Evening before surgery: liraglutide/placebo 0.6 mg

Day of surgery: liraglutide/placebo 1.2 mg + routine and study laboratory measurements.

Transfer to ICU: stop intervention

30 days after surgery: end follow-up.

Intervention

Patients will be randomized (1:1) to perioperative liraglutide treatment or placebo. Liraglutide or placebo 0.6 mg subcutaneously (sc) the day before surgery and 1.2 mg sc on the day of surgery will be administered.

Contacts

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Eligibility criteria

Inclusion criteria

• Adult patients, aged 18-80 years (inclusive),

• No known diabetes mellitus, or

• Known diabetes mellitus type 2 on oral glucose lowering medication, diet or total daily insulin dose ≤0.5 IU/kg

• Scheduled for an elective cardiac surgical procedure.

• Informed consent obtained before any trial-related activities are carried out.

Exclusion criteria

• Diabetes mellitus type 1

• Emergency surgery

• Receiving oral corticosteroid therapy

• History of pancreatic surgery or acute or chronic pancreatitis

• Personal or family history of medullary thyroid cancer (MTC) or Multiple Endocrine Neoplasia23 syndrome type 2 (MEN2)

• Heart failure NYHA class III or IV

• Serum-creatinine ≥ 133 µmol l-1 for males and ≥ 115 µmol l-1 for females

• Female of child-bearing potential who is pregnant, breast-feeding or intend to become pregnant or is not using adequate contraceptive methods

• Current treatment with GLP-1 analogues

• Known or suspected allergy to trial products or other drugs in the same class

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)
Control:	Placebo

Recruitment

NL
Recruitment status: Recruitment stopped

Start date (anticipated):	09-06-2017
Enrollment:	274
Type:	Actual

Ethics review

Positive opinion Date:	04-01-2017
Application type:	First submission

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
NTR-new	NL6176
NTR-old	NTR6323
Other	EudraCT + WHO UTN : 2017-000043-40 + U1111-1183-2689

Study results