

PRO-TECT II: Propofol cardioprotection for type II diabetics

Submission date 05/03/2010	Recruitment status No longer recruiting	☐ Prospectively registered
Registration date 11/03/2010	Overall study status Completed	☐ Protocol
Last Edited 04/01/2016	Condition category Nutritional, Metabolic, Endocrine	☐ Statistical analysis plan
		☒ Results
		☐ Individual participant data

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

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Additional identifiers

ClinicalTrials.gov (NCT)
NCT00734383

Protocol serial number
210938

Study information

Scientific Title

Propofol cardioprotection during ischaemia-reperfusion to preserve myocardial function: an interventional randomised efficacy study

Acronym

PRO-TECT II

Study objectives

Elevated oxidant stress may occur during myocardial ischaemia-reperfusion, influencing release and action of tumour necrosis factor-alpha (TNF- α), which inhibits cardioprotective endothelial NOS (eNOS), enhances endothelin-1 (ET-1) formation, and promotes the conversion of nitric oxide to cardiotoxic peroxynitrite. These factors cause cardiac dysfunction. Effective antioxidant intervention during ischaemia-reperfusion will preserve myocardial function.

Ethics approval required

Old ethics approval format

Ethics approval(s)

University of British Columbia (UBC) Clinical Research Ethics Board, 22/09/2009, ref: H04-70456

Study design

Interventional treatment randomised double-blind (subject, investigator) placebo-controlled parallel assignment efficacy study

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Cardioprotection for type II diabetics

Interventions

1. Experimental - propofol cardioprotection:

Ten minutes prior to initiation of CPB, we will stop delivery of isoflurane, inject 1 mg/kg intravenous (iv) and then continuously infuse propofol at 120 μ g/kg/min iv until 15 minutes after release of the aortic cross clamp (reperfusion).

2. Experimental - volatile anaesthesia preconditioning:

Anaesthesia will be maintained using an inspired concentration of isoflurane between 0.5 - 2% before, during, and after CPB, without administration of propofol. For ten minutes prior to the initiation of CPB we will deliver Isoflurane 2.5% end tidal then resume maintenance anaesthesia as described.

Total duration of treatment and follow up is currently up to 30 days post-operatively at the current time.

Intervention Type

Drug

Phase

Not Applicable

Drug/device/biological/vaccine name(s)

Propofol

Primary outcome(s)

Peri-operative plasma 15 f2t isoprostane, a biologically active marker of oxidative stress.

Timeframe: 24 hours post-operation.

Key secondary outcome(s)

Biochemical outcomes:

1. Plasma total antioxidant concentration
2. Systemic and coronary sinus levels of troponin I, ET-1, TNF-a, and peroxynitrite formation in blood
3. Gene and protein expression of inducible NOS (iNOS) and eNOS
4. Protein expression of Akt and its activation
5. Evidence of superoxide formation in atrial tissue

Clinical outcomes:

6. Incidence rate of low cardiac output syndrome during the first 6 hours after surgery
7. Incidence rate of inotropic support or intra-aortic balloon counterpulsation required for greater than 30 minutes duration to treat low cardiac output syndrome
8. Intensive care unit and hospital lengths of stay

Completion date

31/03/2012

Eligibility

Key inclusion criteria

1. Adult patients aged 18 - 80 years, either sex
2. Undergoing primary coronary artery bypass graft (CABG) surgery requiring cardiopulmonary bypass (CPB) at the Vancouver General Hospital
3. Require revascularisation of three or more coronary arteries with an anticipated aortic cross-clamp time of at least 60 minutes
4. Have a pre-operative systolic blood pressure above 90 mmHg in the absence of inotropic or mechanical support

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 years

Upper age limit

80 years

Sex

All

Key exclusion criteria

1. Type I diabetes mellitus (defined as an established history and diagnosis of diabetes mellitus requiring insulin therapy from the time of diagnosis)
2. Co-existing valvular heart disease (moderate to severe aortic stenosis or mitral regurgitation)
3. Acute or evolving myocardial infarction
4. History of hypersensitivity to propofol or any of its formulation components
5. Taking non-steroidal anti-inflammatory drugs, vitamin C, or vitamin E within five days of surgery

Date of first enrolment

01/04/2007

Date of final enrolment

31/03/2012

Locations**Countries of recruitment**

Canada

Study participating centre

University of British Columbia

Vancouver

Canada

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Sponsor information**Organisation**

University of British Columbia (Canada)

ROR

<https://ror.org/03rmrcq20>

Funder(s)**Funder type**

Research organisation

Funder Name

Canadian Institutes of Health Research (CIHR) (Canada) - <http://www.cihr-irsc.gc.ca> (ref: 210938)

Alternative Name(s)

Instituts de Recherche en Santé du Canada, The Canadian Institutes of Health Research (CIHR), Canadian Institutes of Health Research (CIHR), Canadian Institutes of Health Research | Ottawa ON, CIHR - Welcome to the Canadian Institutes of Health Research, CIHR, IRSC

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

Canada

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/04/2016		Yes	No