The effect of one-week handgrip exercise on post-surgery troponin release after SAVR and/or CABG: a pilot study

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We hypothesize that 1 week handgrip training in patients scheduled for SAVR and/or CABG will lower cardiac troponin release after cardiac surgery compared to a control group without handgrip training.

Ethische beoordeling	Niet van toepassing
Status	Werving nog niet gestart
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON27739

Bron
Nationaal Trial Register

Verkorte titel
Handgrip exercise prior to SAVR and CABG

Aandoening

cardiovascular disease, valve disorders, coronary artery disease

Ondersteuning

Primaire sponsor: Radboudumc Nijmegen
Overige ondersteuning: Radboudumc Nijmegen

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Toelichting onderzoek

Achtergrond van het onderzoek

Annually, ~10,000 patients are scheduled in the Netherlands for surgical aortic valve replacement (SAVR) or coronary artery bypass grafting (CABG) procedures. During these procedures, the heart is exposed to ischaemia, which is followed by reperfusion. Ischaemia-reperfusion represents a significant and harmful stimulus for tissues, including the myocardium and the vascular endothelium. Indeed, SAVR and CABG are associated with a release of biomarkers (e.g. troponin), reflecting cardiac damage. Studies revealed that prior exposure to repeated, short-term ischaemia (i.e. ischaemic preconditioning) may attenuate ischaemia reperfusion injury. However, the effect of ischaemic preconditioning seems attenuated with age and presence of cardiovascular risk factors. Alternatively, recent studies have found preliminary evidence that exercise is also associated with preconditioning effects as it prevents ischaemia-reperfusion injury. Moreover, exercise may be a more potent stimulus than ischaemic preconditioning, as previous work found that regular exercise improves efficacy of preconditioning in older individuals and those with heart failure. Ischaemic preconditioning is typically applied locally to the forearm, and has been linked to cardioprotection. In analogy of this model, local (forearm) exercise may also induce systemic protective effects. This is highly relevant since whole body training is a demanding type of exercise, which might be difficult to implement in patients scheduled for cardiac surgery. Local handgrip exercise, however, would be more feasible to implement in clinical settings to reduce IR-injury, as it demands a low cardiac output and thereby minimises cardiac stress. Handgrip exercise, which can be performed by most patients in a home-based environment, may be a simple, cost-effective and easy applicable strategy for patients undergoing elective SAVR and/or CABG and to effectively minimise cardiac damage. Lower cardiac damage ultimately may translate to improved post-surgery outcomes and prognosis. The aim of this study is to explore the impact of 1 week handgrip training on cardiac troponin release after cardiac surgery in patients scheduled for SAVR and/or CABG compared to a control group without handgrip training.

Doel van het onderzoek

We hypothesize that 1 week handgrip training in patients scheduled for SAVR and/or CABG will lower cardiac troponin release after cardiac surgery compared to a control group without handgrip training.

Onderzoeksopzet

1 week before, 1 week after SAVR and/or CABG

Onderzoeksproduct en/of interventie

Handgrip exercise will consist of a 4 x 5 minutes minute handgrip exercise at 30% of maximal voluntary contraction (MVC). Each handgrip exercise bout is followed by 5 minutes of rest, resulting in a total duration of 35 minutes per handgrip exercise period. Handgrip exercise will be performed daily for a period of 7 days.

Contactpersonen

Publiek

Radboudumc
Yvonne Hartman

0243613650

Wetenschappelijk

Radboudumc
Yvonne Hartman

0243613650

Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

Adults >18 years, mentally able/allowed to give informed consent and scheduled for elective SAVR and/or CABG procedures.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

- Presence of an absolute contra-indication for the performance of handgrip exercise: Amputation of the upper limbs, Polyneuropathy
- Mental impairment leading to inability to cooperate
- Scheduled for SAVR and/or CABG due to acute hospitalization after coronary event

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Parallel
Toewijzing:	Gerandomiseerd
Blindering:	Enkelblind
Controle:	N.v.t. / onbekend

Deelname

Nederland

Status:	Werving nog niet gestart
(Verwachte) startdatum:	01-05-2020
Aantal proefpersonen:	60
Type:	Verwachte startdatum

Voornemen beschikbaar stellen Individuele Patiënten Data (IPD)

Wordt de data na het onderzoek gedeeld: Nog niet bepaald

Ethische beoordeling

Niet van toepassing

Soort:	Niet van toepassing

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL8583
CCMO	NL72877.091.20

Resultaten