

The effect of mechanical ventilation on heart function

No registrations found.

Ethical review	Positive opinion
Status	Recruiting
Health condition type	-
Study type	Observational non invasive

Summary

ID

NL-OMON29159

Source

Nationaal Trial Register

Brief title

VIMD trial

Health condition

Mechanical ventilation
Myocardial function
Left ventricle
Right ventricle
Critically ill patients

Sponsors and support

Primary sponsor: Academic Medical Center

Source(s) of monetary or material Support: None

Intervention

Outcome measures

Primary outcome

Left ventricular myocardial performance index

Secondary outcome

Left ventricular systolic / diastolic parameters
Right ventricular systolic / diastolic parameters

Study description

Background summary

Critically ill patients admitted to the Intensive Care Unit frequently require mechanical ventilation to ensure adequate gas exchange. However, mechanical ventilation itself can instigate ventilator-induced lung injury (VILI). The use of high tidal volume ventilation has shown to be the most important contributing factor of VILI with increased morbidity and mortality.

With increasing tidal volume size, the intrathoracic pressures increase linearly resulting in a decrease in stroke volume, mainly by a decrease in left ventricular (LV) preload through a decrease in right ventricular (RV) preload and increase in RV afterload. Possible deleterious effects of high tidal volumes on LV function are largely unknown, partly because of the difficulty of measuring myocardial function independent of changes in loading conditions. The myocardial performance index assessed by non-invasive trans thoracic echocardiography can determine myocardial function in a relatively load-independent way. Experimental studies have suggested that high tidal volume ventilation may induce various inflammatory mediators that leak into the circulation causing injury to distant organs including the heart, in other words "ventilator-induced myocardial dysfunction" (VIMD). We therefore investigate whether tidal volume size has an effect on left and right ventricular function in mechanically ventilated critically ill patients.

Study objective

High tidal volume ventilation has shown to cause ventilator-induced lung injury (VILI), possibly contributing to concomitant extrapulmonary organ dysfunction. The present study examines whether ventilator-induced myocardial dysfunction (VIMD) is dependent on tidal volume size

Study design

After 24 hours of mechanical ventilation

Intervention

Trans thoracic echocardiography in patients mechanically ventilated longer than 24 hours

Contacts

Public

Meibergdreef 9

T.G.V. Cherpanath
Amsterdam 1105 AZ
The Netherlands
020-5669111

Scientific

Meibergdreef 9

T.G.V. Cherpanath
Amsterdam 1105 AZ
The Netherlands
020-5669111

Eligibility criteria

Inclusion criteria

Mechanically ventilated longer than 24 hours

Age above 18 years

Exclusion criteria

Refractory circulatory instability / severe septic shock requiring norepinephrine $> 0,5$ gamma

Poor left ventricular function

Skin or thorax disorders rendering trans thoracic echocardiography infeasible

Study design

Design

Study type: Observational non invasive

Intervention model:	Parallel
Allocation:	Non-randomized controlled trial
Masking:	Single blinded (masking used)
Control:	N/A , unknown

Recruitment

NL	
Recruitment status:	Recruiting
Start date (anticipated):	01-11-2014
Enrollment:	40
Type:	Anticipated

Ethics review

Positive opinion	
Date:	21-06-2015
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	NL5143
NTR-old	NTR5283
Other	METC van het AMC : W14_299

Study results

Summary results

None yet