Automatic weaning with adaptive support ventilation (ASV): effect on nurse workload and duration of spontaneous ventilation until extubation.

No registrations found.

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

Summary

ID

NL-OMON26702

Source
NTR

Brief title
N/A

Health condition

Mechanical ventilation after coronary bypass grafting.

Sponsors and support

Primary sponsor: None
Source(s) of monetary or material Support: None

Intervention

Outcome measures

Primary outcome

1. Number of ABG analysis;

2. Number of audible alarms;

3. Number of manual changes in the ventilator settings (including (a) switches from PC to PS (only in the control group), (b) changes in minute ventilation (only in the ASV group), (c) lowering of PS-level (only in the control group);

4. Duration of period of spontaneous mechanical ventilation;

5. Duration of total period of tracheal intubation.

Secondary outcome

N/A

Study description

Background summary

Adaptive support ventilation (ASV) is a microprocessor-controlled mode of mechanical ventilation that maintains an operator preset minimum minute ventilation, independent of the patients activity.
ASV provides automatic selection of ventilatory settings and continuous -breath by breath-adaptation. ASV is a closed-loop control mode that may switch automatically from a pressure controlled ventilation (PCV)-like behavior to a pressure support ventilation (PSV)-like behavior, according to the patient status.
The operating principles are based on pressure-controlled synchronized intermittent mandatory ventilation (SIMV) with pressure levels and SIMV rate automatically adjusted according to measured lung mechanics at each breath.

Previous studies have tested the efficiency, safety, and adaptability of ASV. A respiratory weaning protocol based on ASV may accelerate tracheal extubation and simplify ventilatory management. Indeed, in a small study by Sulzer et al. there was a trend towards shorter duration of tracheal intubation in patients mechanically ventilated with ASV versus patients mechanically ventilated with SIMV and PSV. This non-significant reduction in intubation time was mainly caused by a shortening of time between admittance to the intensive care (IC)-unit and start of spontaneous ventilation (and not the period in which the work of breathing is progressively transferred from the ventilator to the patient).
These findings were confirmed in larger study on post-cardiac surgery patients by Petter et al. A lower number of arterial blood gas analyses (ABG) in the ASV group in the study by Sulzer et al. indicates that fewer changes of the respiratory settings were necessary, suggesting that ASV may simplify the management of respiratory weaning.
Similar findings existed in the study by Petter et al., in which ASV resulted in less manipulation of the setting and alarms. No other randomized studies have been published yet.

All patients in the above-mentioned studies were so-called 'fast-track' patients, i.e., patients that are expected to be eligible for extubation within hours after admission to the IC-unit. Investigations regarding the influence of a respiratory weaning protocol based on ASV on nurse work load and tracheal intubation time (and the period of non-spontaneous mechanical ventilation) in non-fast track patients are presently unavailable.

Study objective

We hypothesize that:
(1) ASV reduces the number of nurse-ventilator interactions in non-fast track cardiac surgery patients;
(2) ASV lengthens the period of spontaneous breathing, while shortening the total respiratory weaning time.

Study design

N/A

Intervention

Patients will be either ventilated in a standard fashion (i.e., pressure controlled mechnanical ventilation or pressure support mechanical ventilation) or by ASV.

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Eligibility criteria

Inclusion criteria

1. Planned uneventful cardiac surgery i.e. CABG;

2. Following receipt of verbal and written information about the trial, the patient must provide signed and dated informed consent before any trial related activity is carried out.

Exclusion criteria

1. History of pulmonary disease;

2. History of pulmonary surgery;

3. Valve surgery;

4. Arrival at the IC-unit with IABP or inotropes at a more then usual rate (in ml per hour: dopamine (4), norepinephrine (4), dobutamin (4) or epinephrine [any rate]).

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Open (masking not used)
Control:	Active

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	01-10-2005
Enrollment:	128
Type:	Actual

Ethics review

Positive opinion

Date:	27-08-2005
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	NL121
NTR-old	NTR154
Other	: N/A
ISRCTN	ISRCTN65935865

Study results

Summary results
N/A