The effect of neuromuscular electrostimulation on muscle strenghthening of the m. quadriceps and on physical performance in frail elderly with poor physical performance on <= day 4 of hospital admission. Pilot study.

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In recent studies physical training against resistance appeared to be the most successfull to prevent sarcopenia. Because of the bad physical condition of the elderly during a hospital admission resistancetraining can't be applied. A Pilot...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON40231

Source
ToetsingOnline

Brief title
Effect NMES on physical performance in frail elderly during hospitalization

Condition

- Other condition
- Muscle disorders

Synonym
age and disease related muscle waekness, Sarcopenia

Health condition

Fysieke inactiviteit en sarcopenie door verscheidene oorzaken

Research involving
Human

Sponsors and support

Primary sponsor: Orbis Medisch Centrum
Source(s) of monetary or material Support: Geen financiering

Intervention

Keyword: Frail elderly, Hospital admission, Neuromuscular electrical stimulation, Physical performance, Sarcopenia

Outcome measures

Primary outcome

Short physical performance battery

HABAM

Knee extension

Measurement of muscle mass of the upper legs measured with the Maltron Bioscan

920-II

Secondary outcome

Tolerance of NMES and side effects.

Admission time in days

Destination of dismissal; home or to a health facility

Mortality

Study description

Background summary

Elderly admitted to the geriatric ward of the hospital have got almost always a acute medical problem in combination with other (chronic) illnesses and mental and/or physical changes. This data makes them very vulnerable. Thereby they have a large risk of complications on which one of them is the risk of function loss. One of the most important causes of physical deterioration is sarcopenia. This is defined as a syndrom characterised by progressive and generalised loss of skeletal muscle mass and strenght with a risk of adverse outcomes such as physical disability, poor quality of life and death. In elderly 70 years of age the loss of skeletal muscle mass is 35% as a result of the proces of common ageing. In addition to this information looses an acute ill geriatric patient about >= than 1 kg of the muscle mass of his legs within 3 days after admission. 10 days of immobility can be compared with the muscle loss of 15 years of common ageing. So it can be said that hospital admission will accelerate the loss of muscle mass. In a important part of those elderly will return to their own home appear to be a problem.

Study objective

In recent studies physical training against resistance appeared to be the most successfull to prevent sarcopenia. Because of the bad physical condition of the elderly during a hospital admission resistancetraining can't be applied. A Pilot study of the students physiotherapy earlier this year showed that in the first days/week of a admission the physical load capacity is too low. That's why resistance training is not an option. Therefore we are looking for an other way to prevent functional loss during admission when training against resistance isn't possible. Other recent studies have shown that the application of neuromuscular electrostimulation (NMES) is a possibilty to prevent functional loss. The aim of this researce is therefore to examine the effect of NMES on prevention of progressive and generalised loss of muscle mass and strenght and with that the prevention of functional loss.

Study design

The application of NMES in combination with the usual care on 15 frail elderly, 70 years and above, admitted to the geriatric ward of the Orbis Medisch Centrum with different causes of disease with a SPPB <6 on day <=4 after admission. This population will be compares with a control group. This group will only achieve the usual care, exercise in guidance of the physiotherapist.

Intervention

Application of NMES 5 days a week for 60 minutes a day during at least 1 week.

Study burden and risks

The burden and risks (shortterm muscle ache, fatigue and dermatitis in result

of the patch) associated with participation are limited. The outcome(s) of the study, preservation of muscle strenght and mobility, may have major consequences for the quality of life in frail elderly and a decrease in comorbidity during and after hospital admission. In conclusion; the result(s) of the intervention may have far-reaching consequences for the patient(s).

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Frail elderly, 70 years and above, with a SPPB <6 on day <=4 after admission to the geriatric ward.

Exclusion criteria

- Bound to a wheelchair before admission
- Terminal illness
- Pain in the lower body which makes mobilisation impossible
- No recovery of the underlying illness on day 4 of admission in comparison with the first day after admission
- Presence of a pacemaker or ICD
- Impossibility to give the patient instructions concerning the NMES and his measurements

Study design

Design

Study type:	Interventional
Intervention model:	Other
Allocation:	Randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	01-09-2014
Enrollment:	30
Type:	Actual

Ethics review

Approved WMO

Date:	06-06-2014
Application type:	First submission
Review commission:	METC Z: Zuyderland-Zuyd (Heerlen)

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
CCMO	NL47182.096.13