

Effects of high-frequency neuromuscular electrostimulation with external weights in patients with chronic obstructive pulmonary disease with severe symptoms of shortness of breath and dysfunction of lower extremity muscles: a pilot effects study.

Gepubliceerd: 28-05-2018 Laatste bijgewerkt: 15-05-2024

- The intensity is higher at NMES with external weights than at NMES without external weights, measured by reading the number of mA on the NMES device. - The metabolic response is the same or higher during NMES in combination with external weights...

Ethische beoordeling	Positief advies
Status	Werving nog niet gestart
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON23296

Bron

Nationaal Trial Register

Aandoening

chronic obstructive pulmonary disease (COPD)
neuromuscular electrostimulation (NMES)
external weights
intensity

chronisch obstructief longlijden (COPD)
neuromusculaire electrostimulatie (NME S)
externe gewichten
intensiteit

Ondersteuning

Primaire sponsor: CIRO Horn

Overige ondersteuning: CIRO Horn

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

The primary research parameter is to determine whether external weights affect NMES intensity (height mA), in patients with COPD characterized by muscle weakness and / or severe shortness of breath.

Toelichting onderzoek

Achtergrond van het onderzoek

Patients with chronic obstructive pulmonary disease (COPD) still have symptoms of shortness of breath and fatigue in daily functioning despite optimal drug treatment. Pulmonary rehabilitation can improve these complaints. Unfortunately, not every COPD patient is able to complete the conventional training, due to effort-related dyspnea. Transcutaneous neuromuscular electrostimulation (NMES) is a relatively new treatment modality in patients with COPD with good results on skeletal muscle function, exercise tolerance and quality of life. To date, a high frequency has been used without external weights. There are indications that NMES with external weights can ensure that the intensity is increased during the intervention. The aim of this study is to determine whether external weights actually influence the intensity of NMES and the possible consequences on metabolic processes and muscle activity in patients with COPD.

Doel van het onderzoek

- The intensity is higher at NMES with external weights than at NMES without external weights, measured by reading the number of mA on the NMES device.
- The metabolic response is the same or higher during NMES in combination with external weights compared to NMES without the addition of weights due to a higher intensity, measured by reading the number of mA on the NMES device and a mobile oxycon.
- Muscle activation is higher during NMES in combination with external weights compared to NMES without the addition of weights due to a higher intensity, measured by reading the number of mA on the NMES device and an EMG measurement.

Onderzoeksopzet

NMES will be applied to the patient with and without the addition of external weights, these external weights will be attached to the ankles. This will be carried out without weight and with 2.5 kg and once with 5.0 kg. The musculature is stimulated with a frequency of 75 Hz and a pulse duration of 400 microseconds. The intensity is increased by the patient to the tolerance limit. Patients are verbally motivated to increase the intensity as much as possible. When this is achieved, both metabolic processes and muscle activation will be assessed. The metabolic processes are maintained by means of a mobile oxycon. The muscle activity will be monitored by means of an EMG measurement

In total there are 3 measurement moments of 3 minutes per test. In the meantime there will be a moment of rest of 9 minutes (33). In total, the entire study will take about 45 minutes per patient.

Onderzoeksproduct en/of interventie

NMES will be applied to the patient without the addition of external weights. The muscles are stimulated with a frequency of 75 Herz and a pulse duration of 400 microseconds. The intensity is increased by the patient to the tolerance limit. Patients are verbally motivated to increase the intensity as much as possible. During the NMES, metabolic load and muscle activation are measured. The metabolic load is measured by means of a mobile oxycon. The muscle activity will be monitored by means of an EMG measurement. These measurements will be measured both at the start and at the end of the treatment. During the tests it is necessary that the intervention is still ongoing.

Contactpersonen

Publiek

D. Crooijmans
[default]
The Netherlands
+31 (0)655 525 841

Wetenschappelijk

D. Crooijmans
[default]

Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

Patients with COPD

Medical Research Council dyspnea scale (mMRC) 3/4

Muscle weakness of the lower extremities

Permission for voluntary participation

Being able to communicate in Dutch.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

Neuromuscular disorders

Known joint disorders in hip, leg and / or knee

Metal implants in hip, leg and / or knee

Cardiac Pacemaker or Internal Cardiac Defibrillator (ICD)

Lack of motivation to voluntarily participate in this study

Patients requiring chronic oxygen therapy are excluded for the measurements to determine the metabolic response

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Cross-over
Toewijzing:	Gerandomiseerd
Blinding:	Enkelblind
Controle:	Actieve controle groep

Deelname

Nederland	
Status:	Werving nog niet gestart
(Verwachte) startdatum:	30-05-2018
Aantal proefpersonen:	15
Type:	Verwachte startdatum

Ethische beoordeling

Positief advies	
Datum:	28-05-2018
Soort:	Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

ID: 46386
Bron: ToetsingOnline
Titel:

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL7031

Register

NTR-old

CCMO

OMON

ID

NTR7236

NL63531.100.17

NL-OMON46386

Resultaten

Samenvatting resultaten

-