Measurement of joint impedance and estimation of reflex gains in shoulder and elbow muscles in patients with peripheral nerve lesions using a two degrees of freedom haptic planar device.

Published: 29-06-2009
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To investigate whether propriocepsis or reflexes are present after nerve reconstruction

Ethical review	Approved WMO
Status	Completed
Health condition type	Muscle disorders
Study type	Observational non invasive

Summary

ID

NL-OMON33120

Source
ToetsingOnline

Brief title
Reflex gain estimation in peripheral nerve lesions

Condition

- Muscle disorders
- Peripheral neuropathies

Synonym
Brachial plexus lesions, Nerve trauma

Research involving
Human

Sponsors and support

Primary sponsor: Leids Universitair Medisch Centrum
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: Brachial plexus lesions, Elbow flexors, Peripheral nerve lesions, Propriocepsis

Outcome measures

Primary outcome

Reflex gain and modulation

Secondary outcome

Muscle force around shoulder and elbow; Range of Motion of shoulder and Elbow

Study description

Background summary

Patients with a peripheral nerve lesion who have a paresis of the elbow flexing muscles, often undergo surgery to reconstruct the damaged nerves. Although the surgery usulally results in ganing muscle force, functionality is not always restored. This may be due to the fact that the propriocepsis or the feedback or the reflexes are not restored.

Study objective

To investigate whether propriocepsis or reflexes are present after nerve reconstruction

Study design

Using a planar haptic device, force and psoition perturbations are applied to the hand. The recations of the subject are measured. System identification and neuromuscular modelling are used to determine the tranfer functions of perturbation to reaction and subsequently to derive the reflex gain and modulation. Cross sectional study with 10 patients and 10 age and sexe matched control subjects

Study burden and risks

The risks are minimal
The burden comprises one session of measurements, taking in total 3 hours, of which 45 minutes actual measurement time

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

- Patients with brachial plexus lesions or nerves innervating the elbow flexor muscles resulting in a paresis of the elbow flexor muscles;- There is some handfunction left;- Patients underwent primary nerve reconstruction with mesurable feffect, i.e. the muscle strength did increase with at least one point on the MRC scale

Exclusion criteria

- joint contractures in elbow or shoulder
- no return of elbow flexion strength after surgery
- other neurological diseases

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)

Primary purpose: Basic science

Recruitment

NL

Recruitment status:	Completed
Start date (anticipated):	18-01-2010
Enrollment:	20
Type:	Actual

Medical products/devices used

Registration:	No

Ethics review

Approved WMO

Date:	29-06-2009
Application type:	First submission
Review commission:	METC Leids Universitair Medisch Centrum (Leiden)

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	NL27735.058.09