Assessment of the hand grip in patients with rheumatoid arthritis or hand arthrosis, and healthy individuals while using the E-cone.

Published: 29-03-2011
Last updated: 27-04-2024

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Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Joint disorders
Study type	Observational non invasive

Summary

ID

NL-OMON36780

Source
ToetsingOnline

Brief title
Reliability and validity of the E-cone for the assesment of hand grip.

Condition

- Joint disorders

Synonym
rheumatic diseases, rheumatoid arthritis

Research involving
Human

Sponsors and support

Primary sponsor: Reade, centrum voor revalidatie en reumatologie
Source(s) of monetary or material Support: Geen; onderzoek vindt plaats in het kader

van de patientenzorg

Intervention

Keyword: E-cone, hand arthrosis, hand coordination, rheumatoid arthritis

Outcome measures

Primary outcome

The reliability and validity of the E-cone during assessment of the hand grip in patients with rheumatoid arthritis or hand arthrosis, and healthy individuals.

Secondary outcome

Other questions:

1. What is the reliability (intra - and interreliability) of the clinical assessment of the grasp pattern of patients with rheumatoid arthritis or hand arthrosis and healthy individuals while using the E-cone?

2. What is the reliability (intra - and interreliability) of the assessment of the pressure distribution measured by the E-cone of patients with rheumatoid arthritis or hand arthrosis and healthy individuals?

3. What is the association between the clinical assessment of the grasp pattern and the measured pressure distribution by the E-cone?

4. What is the association between the clinical assessment of the grasp pattern on the one hand and the function of the hand (assessed by means of the HAQ -

grip) and the activity level (assessed by the DASH) on the other hand?

5. What is the association between the pressure distribution during grasping on the one hand and the function of the hand (assessed by means of the HAQ - grip) and the activity level (assessed by the DASH) on the other hand?

6. What is the association between the clinical assessment of the grasp pattern and the digitalized output of the E-cone?

7. What is the association between the pressure distribution during grasping and the digitalized output of the E-cone?

8. What is the association between the digitalized output of the E-cone pressure (hand function) on the one hand and the function of the hand (assessed by means of the HAQ - grip) and the activity level (assessed by the DASH) on the other hand?

Study description

Background summary

Many patients with rheumatoid arthritis develop early in the development of the disease an imbalance between the intrinsic and the extrinsic muscles of the hand. The intrinsic muscles predominate over the extrinsic muscles. This causes a downward spiral that eventually ends in a deformed hand. Patients with hand arthrosis show the same imbalance between intrinsic and extrinsic muscles. The treatment in the early fases of rheumatoid arthritis and hand athrosis focusses on optimal hand co-ordination of the hand muscles. It is difficult to teach patients this optimal hand coordination, as they have already taught

themselves an imbalanced hand co-ordination. It is necessary for patients to recognize and acquire the optimal hand coordination. Correct feedback regarding the hand coordination is essential for this purpose; for this, visualisation of the handgrip is an essential item.
Recently a new measurement instrument had been developed, by which means the distribution of the hand pressure can be visualized, the so-called E-cone. A matrix of pressure sensors attached to a conus measures the pressure of the hand. The distribution of the hand pressure can be visualized on a screen. Thus enabling the patient to receive directly feedback on his hand pressure and therefore on his hand grip.
It seems that a measurement instrument has been developed that has the potential to diagnose and visualize problems in the hand co-ordination in patients with rheumatoid arthritis of hand arthrosis. Furthermore the instrument seems suitable as an aid in the therapy of patients with imbalanced hand grip.
For an optimal understanding, this pilot will be performed in 2 groups with maximum differentiation between on the one hand serious imbalanced hand grip (in patients with reumatoid arthritis or hand arhrosis) and on the other hand normal handgrip in healthy individuals.

Study objective

Assessment of the hand grip in patients with rheumatoid arthritis or hand arthrosis, and healthy individuals while using the E-cone.

Study design

Observational study.

Study burden and risks

The participation of the patients with rheumatoid arthritis or hand arthrosis in the study will take place directly after the therapy they follow in the light of their hand problems. It consists of completing two questionnaires with multiple choice questions and lifting the E-cone two times during three seconds. The act of lifting the E-cone will be filmed (only the hand and forearm will be seen on video) in order to answer the first research question.

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

Group 1 patients:
Diagnosis of rheumatoid arthritis or hand arthrosis.
Patients have been referred for treatment in the hand rehabilitation team in Reade, location Jan van Breemen.
During examination patients have an abnormal pattern of grasping due to contractures, subluxation, tight intrinsic muscles or joint deviation. ;Group 2: healthy individuals:
No problems with the hand, at present or in the past.
Normal grasping pattern and during physical examination, no impairments of the hands.

Exclusion criteria

Group 1:
Status after amputation of 1 or more (parts of) fingers of the hand that will be assessed.
Patients who have used the E-cone during treatment.

Study design

Design

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	09-02-2012
Enrollment:	50
Type:	Actual

Ethics review

Approved WMO

Date:	29-03-2011
Application type:	First submission
Review commission:	METC Slotervaartziekenhuis en Reade (Amsterdam)

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	NL35239.048.11