

Clinical Trial Protocol

Iranian Registry of Clinical Trials

28 Jun 2026

The effect of motor imagery with sensory feedback exercises on upper extremity sensory-motor function in stroke patients

Protocol summary

Study aim

Impact of motor imagery exercises with sensory feedback on the sensory-motor function of the upper extremity of stroke individuals

Design

In this study, 30 eligible patients referring to therapeutic center dependent to IUMS are chosen purposefully and a code is allocated to each of one of them. Then patients are randomly divided into two intervention (motor imagery) and control (conventional rehabilitation) groups.

Settings and conduct

This is a randomized clinical trial study. First the ethical code, from Iran University of Medical Sciences, is obtained. Then sampling from neurology outpatient clinics (school of rehabilitation clinic, Firoozgar and Shafa-Yahyaieian hospitals) is conducted. Then the eligible participant fill out form of willingness, they will randomly be assigned to one of two groups (intervention, control). This is a single blind and only testers are blind to the study. But the patients know which group of protocol they are and the therapists are also aware of the type of protocols.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Diagnosis of stroke, Brunnstrom upper extremity function level 2 and more , cognitive level at least 21 according to MMSE, not having of musculo-skeletal problems leading to contracture and joint deformity, not having unilateral neglect, demantia or depression, not having Broca-Vernike aphasia (according to neurologist diagnosis), ability to reading and writing. Exclusion criteria: Recurrence of stroke during study process.

Intervention groups

Intervention group protocol: It Includes motor-imagery exercise for upper extremity. For this purpose, we have designed a simple method to give patients more precise and more accurate training. The functions of the upper extremity (anti-spastic tone), which is important in

activity of daily living are performed. These include: abduction and external rotation of shoulder, elbow extension, forearm supination, wrist extension, and flexion of the metacarpal-phalanges (MP) joints of hand. These exercises are mentally and with closed eyes. In the intervention group. They also use the treatment of the control group. Control group protocol: They receive conventional rehabilitation exercises . These include: programs for motor function, exercises affecting muscle tone, upper limb training, exercises for decreasing of pain and edema in upper limb.

Main outcome variables

Sensory-motor function of the upper extremity

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20140416017301N5**

Registration date: **2018-01-29, 1396/11/09**

Registration timing: **retrospective**

Last update: **2018-01-29, 1396/11/09**

Update count: **0**

Registration date

2018-01-29, 1396/11/09

Registrant information

Name

Akram Azad

Name of organization / entity

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2016-09-22, 1395/07/01

Expected recruitment end date

2017-04-19, 1396/01/30

Actual recruitment start date

2016-09-22, 1395/07/01

Actual recruitment end date

2017-04-19, 1396/01/30

Trial completion date

empty

Scientific title

The effect of motor imagery with sensory feedback exercises on upper extremity sensory-motor function in stroke patients

Public title

" The effect of motor imagery exercises on upper extremity function in stroke patients"

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

The level of upper extremity function according to Brunstrum ≥ 2 Ability to reading and writing Ability of cognitive level according to MMSE ≥ 21 Not having muscle-skeletal problem leading to contracture or joint deformity Not having unilateral neglect Not having demansia and depression Not having Broca--Vernike aphasia

Exclusion criteria:

Recurrence of stroke during study process

Age

From **30 years** old to **80 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Participant

Sample size

Target sample size: **30**

Actual sample size reached: **30**

Randomization (investigator's opinion)

Randomized

Randomization description

Simple randomization: Participants are assigned to intervention and control groups based on even/odd coding. According to the entry of individuals with the inclusion criteria for the plan, the individuals with the odd code in the control group and the even code in the intervention group will be placed.

Blinding (investigator's opinion)

Single blinded

Blinding description

This study is single blind and only the examiner dose not know which patients belong to which group.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Iran University of Medical Sciences

Street address

School of Rehabilitation, Mirdamad Ave, Shahnazari Ave

City

Tehran

Province

Tehran

Postal code

158754391

Approval date

2016-09-10, 1395/06/20

Ethics committee reference number

IR.IUMS.REC.1395.9411355007

Health conditions studied

1

Description of health condition studied

Stroke

ICD-10 code

I64

ICD-10 code description

Stroke, not specified as haemorrhage or infarction

Primary outcomes

1

Description

"Sensory-motor function of upper extremity"

Timepoint

Before and after intervention

Method of measurement

Box-Block Test, Purde-Peg Board Test, Rang of Motion, Modified Ash- worth Scale, Two-Point Discrimination Test, Nottingham Sensory Assessment, Stroke Impact Scale

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: It Includes motor-imagery exercise for upper extremity. For this purpose, we have designed a simple method to give patients more precise and more accurate training. The functions of the upper extremity (anti-spastic tone), which is important in activity of daily living are performed. These include: abduction and external rotation of shoulder, elbow extension, forearm supination, wrist extension, and flexion of the metacarpal-phalanges (MP) joints of hand. These exercises are mentally and with closed eyes. Intervention group also receive the treatment of the control group.

Category

Rehabilitation

2

Description

Control group: They receive conventional rehabilitation exercises. These include programs for motor function, exercises affecting muscle tone, upper limb training, exercises for decreasing of pain and edema in upper limb.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

School of rehabilitation clinic, Firoozgar hospital, Shafa-Yahyaian hospital

Full name of responsible person

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Iran University of Medical Sciences

Full name of responsible person

Seeid Kazem Malakoti-Vice-Chancellor's Office for Research

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Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Iran University of Medical Sciences

Proportion provided by this source

100

Public or private sector

Public
Domestic or foreign origin
Domestic
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
Academic

Person responsible for general inquiries

Contact

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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Undecided - It is not yet known if there will be a plan to make this available

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Yes - There is a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

Not applicable

Title and more details about the data/document

Not Decided

When the data will become available and for how long

Not Decided

To whom data/document is available

Not Decided

Under which criteria data/document could be used

Not Decided

From where data/document is obtainable

Not Decided

What processes are involved for a request to access data/document

Not Decided

Comments