Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 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-Yahyaeian 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 musculu-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

Country

Iran (Islamic Republic of)

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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 enen 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 Rehabilition, 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 affter 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 rehabiltion clinic, Firoozgar hospital, Shafa-Yahyaian hospital

Full name of responsible person
Akram Azad

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Recruitment center

Name of recruitment center
School of rehabiltion clinic, Firoozgar hospital, Shafa-Yahyaian hospital

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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

Name of organization / entity
Iran University of Medical Sciences

Full name of responsible person
Akram Azad

Position
Assistant Professor

Latest degree
Ph.D.

Other areas of specialty/work
Occupational Therapy

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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