Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Effects of gait training with and without Proprioceptive Neuromuscular Facilitation on balance and gait in chronic stroke patients.

Protocol summary

Study aim
To compare the effects of gait training with and without proprioceptive neuromuscular facilitation on balance and gait in chronic stroke patients.

Design
randomized, parallel group trial with double blinded outcome assessment.

Settings and conduct
Data was collected from University Physical Therapy and Rehabilitation Clinic, Lahore Pakistan. Patients and outcome assessors/data collectors were unaware of group allocation

Participants/Inclusion and exclusion criteria
Inclusion criteria were hemiplegic patients having single episode of ischemic or hemorrhagic stroke diagnosed by neurologist, male and female patients of age between 35 to 85 years, duration of stroke more than 6 months, participants able to walk with or without support for 10 m and participants having Mini-Mental Status Examination [MMSE] ≥24. Exclusion criteria were participants with severe spasticity (modified ashworth scale grade≥3) or severe flaccidity in lower limbs and upper limbs, patients having orthopedic injury that could interfere with walk, patients having visual and auditory impairments.

Intervention groups
In experimental group, Proprioceptive Neuromuscular Facilitation based gait training along with routine physical therapy was performed. Control group received gait training and routine physical therapy. Treatment was provided for six weeks, 3 days per week (on alternative basis) up to six weeks.

Main outcome variables
balance and gait

General information

Reason for update
Acronym
IRCT registration information
IRCT registration number: **IRCT20201101049221N1**
Registration date: **2020-11-24, 1399/09/04**
Registration timing: **retrospective**

Last update: **2020-11-24, 1399/09/04**
Update count: **0**

Registration date
2020-11-24, 1399/09/04

Registrant information

Name
Momna Asghar

Name of organization / entity
The University of Lahore

Country
Pakistan

Phone
+92 56 3785097

Email address
momna2april@gmail.com

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2020-03-07, 1398/12/17

Expected recruitment end date
2020-04-25, 1399/02/06

Actual recruitment start date
2020-03-10, 1398/12/20

Actual recruitment end date
2020-07-15, 1399/04/25

Trial completion date
2020-08-26, 1399/06/05

Scientific title
Effects of gait training with and without Proprioceptive Neuromuscular Facilitation on balance and gait in chronic stroke patients.

Public title
Effects of Proprioceptive Neuromuscular Facilitation on balance and gait in chronic stroke patients
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Hemiplegic patients having single episode of hemorrhagic or ischemic stroke Participants who are more than 6 months post stroke Having Mini Mental Status Exam greater than 24 Patients who are able to walk with or without support for 10 m Patients having no orthopedic injuries
Exclusion criteria:
participants with severe spasticity (modified ashworth scale grade≥3) or severe flaccidity in lower limbs and upper limbs participants having visual and auditory dysfunctions
Age
From **35 years** old to **85 years** old
Gender
Both

Phase
N/A
Groups that have been masked

- Participant
- Outcome assessor

Sample size
Target sample size: **60**
Actual sample size reached: **60**
Randomization (investigator's opinion)
Randomized
Randomization description
randomization was done by lottery method
Blinding (investigator's opinion)
Double blinded
Blinding description
Participants and Outcome evaluators were unaware of group allocation.After randomization, study participants were only informed about their allocated exercise program, they remained unaware of the interventions in the other group. Information about the details of both programs was not provided except for similar exercises among both groups. Researchers who assessed outcomes or involved in data analyses will be masked to group allocation.Moreover, if two or more study participants were in the clinic at the same time, they were assigned to different treatment areas without any opportunity to observe each other or their treatment times were rearranged to prevent unintended crossover.
Placebo
Not used
Assignment
Parallel
Other design features
The study is double blinded randomized control trial. two groups are taken, control group and experimental group for comparison

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Institutional Review Board of The University of Lahore
Street address
207 B block, AWT phase 2, Lahore , Pakistan
City
Lahore
Postal code
75500
Approval date
2020-03-05, 1398/12/15
Ethics committee reference number
IRB-UOL-FAHS/718- IV/2020

Health conditions studied

1

Description of health condition studied
stroke
ICD-10 code
I67
ICD-10 code description
Other cerebrovascular diseases

Primary outcomes

1

Description
balancing capability
Timepoint
before intervention and six weeks after intervention
Method of measurement
Berg Balance Scale

2

Description
Gait parameters
Timepoint
before interventions and six weeks after interventions
Method of measurement
GAITRite platinum

Secondary outcomes

empty

Intervention groups

1

Description

Experimental group in which routine physical therapy was performed for 20 minutes and PNF with gait training for 30 minutes (total 50 minutes session). Routine physical therapy involved muscle strengthening exercises, range of motion exercises and stretching exercises up to patient's tolerance based gait training involved PNF pelvic patterns, PNF lower extremity D1 Flexion and PNF lower extremity D1 extension, each exercise was repeated 10 to 20 times or up to patient's tolerance, progressed from rhythmic initiation to stabilizing reversals and then followed by dynamic reversals up to 4th week of treatment session. Other exercises involved pelvic bridging, rolling, sitting and standing exercises and walking practice in parallel bars and treadmill training up to patients tolerance.The treatment was provided at rehabilitation clinic 3 days per week on alternate basis, for 6 weeks (18 sessions). parallel bars, couch, standard chair and treadmill were used during treatment.

Category

Rehabilitation

2

Description

Control group had a treatment session of 40 minutes, 20 minutes of routine physical therapy as that in experimental group that included muscle strengthening exercises, range of motion exercises and stretching exercises up to patient's tolerance and 20 minutes of gait training alone, that included pelvic rolling, bridging, sitting and standing exercises and walking practice in parallel bars and treadmill training up to patients tolerance. The treatment was provided at rehabilitation clinic 3 days per week on alternate basis, for 6 weeks (18 sessions).parallel bars, couch, standard chair and treadmill were used during treatment.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

University Physical Therapy and Rehabilitation center, University of Lahore

Full name of responsible person

Dr. Ashfaq Ahmed

Street address

1 km, Defence road Bhobatian Chowk, Lahore, Pakistan

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

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Full name of responsible person

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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

The University of Lahore

Proportion provided by this source

100

Public or private sector

Private

Domestic or foreign origin

Foreign

Category of foreign source of funding

Sponsor: country of origin

Country of origin

PK

Type of organization providing the funding

Academic

Person responsible for general inquiries

Contact

Name of organization / entity

University of Lahore

Full name of responsible person

Dr Ashfaq Ahmed

Position

Head of Department

Latest degree

Ph.D.

Other areas of specialty/work

Physiotherapy

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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
Undecided - It is not yet known if there will be a plan to make this available
Analytic Code
Not applicable
Data Dictionary
Not applicable
Title and more details about the data/document
Effects of gait training with and without proprioceptive neuromuscular facilitation on balance and gait in chronic stroke patients.
When the data will become available and for how long
six months after publication
To whom data/document is available
It will be available to persons involved in patient rehabilitation in academic institutes and clinical settings
Under which criteria data/document could be used
persons involved in patient care
From where data/document is obtainable
communication can be done through emails
What processes are involved for a request to access data/document
data and documents can be shred through email after publication
Comments