# Effects of pressure garment in managing arm function among stroke patients

Submission date	<b>Recruitment status</b> No longer recruiting	<ul><li>Prospectively registered</li></ul>		
03/06/2019		☐ Protocol		
<b>Registration date</b> 06/06/2019	Overall study status Completed	Statistical analysis plan		
		[X] Results		
Last Edited	Condition category	Individual participant data		
21/05/2020	Nervous System Diseases			

## Plain English summary of protocol

Background and study aims

After a stroke (a serious life-threatening medical condition that occurs when the blood supply to part of the brain is cut off), damage to the brain can block messages between muscles and the brain causing arm and leg muscles to cramp or spasm (spasticity). This post-stroke condition makes daily activities such as bathing, eating and dressing more difficult. Spasticity can cause long periods of strong contractions in major muscle groups, causing painful muscle spasms. The aim of this study is to test the effect of a new tight-fitting pressure garment worn on the affected arm/hand on spasticity over a six-week occupational therapy program.

#### Who can participate?

Aged 21 years old and above, between one month and 12 months post-stroke.

#### What does the study involve?

All participants will take part in a conventional occupational therapy program for two hours every week. Half of the participants will wear a custom fitted pressure garment on the affected arm for six hours a day for six weeks.

What are the possible benefits and risks of participating?

There may or may not be any benefits of participating in the study. Information obtained from this study will help improve the treatment or management of other participants with the same disease or condition.

Potential risks of participating in this study:

- a) Upper extremity becomes discoloured (white/blue) or skin allergy.
- b) Pain and loss of sensation in the affected hand.
- c) The pressure garment is too tight and painful.

The participants are allowed to remove pressure garment if these symptoms occur and inform the therapist immediately.

Where is the study run from? Tengku Ampuan Rahimah Hospital, Malaysia When is the study starting and how long is it expected to run for? June 2016 to June 2017

Who is funding the study? Investigator funded

Who is the main contact? Mrs Hwa Kee Ooi, ooihwakee@yahoo.co.uk

# Contact information

# Type(s)

Public

#### Contact name

Mrs Hwa Kee Ooi

#### **ORCID ID**

http://orcid.org/0000-0003-4085-8434

#### Contact details

Faculty of Health Sciences
Universiti Kebangsaan Malaysia
Jalan Raja Muda Abdul Aziz,
Kuala Lumpur
Malaysia
50300
+60165322535
ooihwakee@yahoo.co.uk

# Additional identifiers

# **EudraCT/CTIS** number

Nil known

**IRAS** number

# ClinicalTrials.gov number

Nil known

# Secondary identifying numbers

NMRR-16-423-29688

# Study information

#### Scientific Title

The effectiveness of pressure garment in the management of spasticity and upper extremity function among stroke patients

#### **Acronym**

**PGUE** 

#### **Study objectives**

The participants in the intervention group were gained greater improvement in all three outcomes as compared to those in the control group after 6 weeks of pressure garment (PG) intervention.

#### Ethics approval required

Old ethics approval format

#### Ethics approval(s)

Approved 06/06/2016, Medical Research and Ethics Committee, Ministry of Health Malaysia (Blok A, Kompleks Institut Kesihatan Negara [NIH], No.1 Jalan Setia Murni U13/52, Seksyen U13 Bandar Setia Alam, 40170, Shah Alam, Malaysia; 03-22874032; nmrr@moh.gov.my) ref: NMRR-16-423-29688

#### Study design

Interventional open-label single centre randomised controlled trial

#### Primary study design

Interventional

#### Secondary study design

Randomised controlled trial

# Study setting(s)

Hospital

# Study type(s)

Treatment

# Participant information sheet

See additional files

# Health condition(s) or problem(s) studied

Stroke recovery

#### Interventions

Forty-six envelopes with number 1 to 46 were randomly chosen by one of the therapists who was blinded to the study protocol, i.e. therapist who was not treating patients with neurological conditions and also not involved in the numbering and envelope preparations. Participants who received odd numbers were allocated in the intervention group and those received even numbers were allocated in the control group. Both the intervention group and the control group participated in a conventional occupational therapy program for 2 hours every week. Twenty-three participants in the intervention group were given custom fitted pressure garment (PG) at the affected upper extremity (UE). PG was custom fabricated using Lycra material by the researcher of this study. The pattern of the affected hand and the circumference of the midforearm of each participant in the intervention group was measured to ensure the fabricated PG

fits exactly well on the forearm and hand. Participants in the intervention group were required to wear the PG for 6 hours a day for 6 weeks continuously. The necessary adjustment was made on the PG to maintain its tight fit.

#### **Intervention Type**

Device

#### Phase

Not Applicable

#### Primary outcome measure

All participants were assessed pre-intervention and 6 weeks post-intervention:

- 1. Spasticity as measured by the Modified Modified Ashworth Scale (MMAS)
- 2. Hand function as measured by the Jebsen Taylor Hand Function Test for the actual performance
- 3. Disabilities of Arm, Shoulder and Hand (DASH) Outcome Measure for the self-report measurement

#### Secondary outcome measures

none

#### Overall study start date

10/12/2015

#### Completion date

01/06/2017

# **Eligibility**

## Key inclusion criteria

- 1. Patient aged 21 years old and above
- 2. Between one month and 12 months post-stroke (ischemic or hemorrhagic adult stroke)
- 3. Absence of severe cognitive problems with Mini Mental State Examination (MMSE) score of at least 24
- 4. Modified Ashworth Scale of 1, 2 or 3 when wrist and hand perform flexion and extension movements

#### Participant type(s)

**Patient** 

# Age group

Adult

#### Sex

Both

# Target number of participants

All participants 46. 23 in each group.

#### Total final enrolment

#### Key exclusion criteria

- 1. Behavior disturbances or serious chronic diseases that can interfere with the ability to give informed consent or cooperation in the study.
- 2. History of UE injuries, e.g. fracture, tendon injuries in the affected side.

# Date of first enrolment

10/06/2016

#### Date of final enrolment

01/06/2017

# Locations

#### Countries of recruitment

Malaysia

# Study participating centre Tengku Ampuan Rahimah Hospital

Jalan Langat Klang Malaysia 41200

# Sponsor information

#### Organisation

Universiti Kebangsaan Malaysia

#### Sponsor details

Faculty of Health Sciences Universiti Kebangsaan Malaysia Jalan Raja Muda Abdul Aziz Kuala Lumpur Malaysia 50300

#### Sponsor type

University/education

#### **ROR**

https://ror.org/01590nj79

# Funder(s)

# Funder type

Other

#### **Funder Name**

Investigator initiated and funded

# **Results and Publications**

# Publication and dissemination plan

Plan to publish the study in Clinical Rehabilitation Journal this year.

# Intention to publish date

01/06/2020

# Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are not expected to be made available due to data protection regulations.

# IPD sharing plan summary

Available on request

# **Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	results	06/06/2019	07/06/2019	No	Yes
Results article		01/04/2020	21/05/2020	Yes	No