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Cognitive stimulation and language rehabilitation of people with language impairment after stroke

Submission date
03/01/2022

Recruitment status
No longer recruiting

Registration date
05/01/2022

Overall study status
Completed

Last Edited
20/12/2022

Condition category
Nervous System Diseases

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[X] Results
[ ] Individual participant data

Plain English summary of protocol

Background and study aims
Aphasia is when a person has difficulty with their language or speech. It's usually caused by damage to the left side of the brain (for example, after a stroke).
This study aims to understand the cognitive profiles (e.g. attention, memory and executive functions in visual and auditory modalities) of Cantonese speakers with aphasia, their relations to language processing, and the effectiveness of a rehabilitation program combining cognitive-stimulating activities with language therapy oriented to functional communication of people with aphasia.

Who can participate?
Adult patients (over 18 years) who have suffered chronic aphasia for at least 6 months

What does the study involve?
Participants will be randomly assigned to the cognitive-language combined therapy or language therapy (control) group. Those assigned to the cognitive-language combined therapy group, will receive a total of 12 sessions of cognitive stimulation and language therapy, which will take place from the 5th to 12th week of the study period. Each training session will last for about 2 hours, including one-hour of cognitive stimulation activities and 45-minute of language therapy. Cognitive stimulation will be provided in game-based activities running in groups of 3-4 clients. The whole process of language therapy will be video- and audio-taped. Participants assigned to the language therapy group, will receive language therapy as mentioned above.

What are the possible benefits and risks of participating?
The research project will provide valuable information that will have important implications for assessment procedures, treatment design and monitoring of therapy progress in Cantonese speakers with aphasia. Participants may benefit from cognitive and/or language training.
The procedure has no known risks. However, it is possible that frustration or fatigue may be experienced by some subjects occasionally.

Where is the study run from?
The University of Hong Kong (China)

When is the study starting and how long is it expected to run for?
September 2017 to March 2020

Who is funding the study?
Seed Fund for Basic Research of the University of Hong Kong (China)

Who is the main contact?
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Contact information

Type(s)
Scientific

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Additional identifiers

Study information

Scientific Title
The role of cognitive stimulation in language rehabilitation of Cantonese speaking persons with aphasia

Acronym
CSCTPWA

Study objectives
1. Cognitive stimulation may bring benefits to cognitive processing related to attention, short-term/working memory and executive functions of PWA, when compared to the patients receiving language intervention only
2. Improvements in cognition, especially executive functions, may further promote performance on language outcome.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 28/04/2018, Human Research Ethics Committee, The University of Hong Kong (The University of Hong Kong, Pokfulam, Hong Kong SAR, China; +852-22415267; hrec_data@hku.hk), ref: EA1703054

Primary study design
Interventional

Study design
Multicenter interventional non-randomized controlled trial

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Treatment of cognition and functional communication on people with chronic aphasia

Interventions
Cantonese-speaking PWA will receive either conversation therapy (CT) and cognitive stimulation (CS) or conversation therapy alone. Participants will be assigned to one of the treatment conditions, i.e., ‘CT + CS’ or ‘CT’. Treatment assignment will be non-randomized. It will be based on both the time when a participant is recruited and their availability to attend a certain treatment condition. PWA assigned to the ‘CT + CS’ treatment condition will receive 12 one-hour sessions of CS when they attended ‘CT’. The sequence of receiving CS and CT will change in every other session. In the meanwhile, no additional intervention will be given to the

participants belonging to the ‘CT’ group. They will be returned to their routine activities after language therapy. Cognitive-stimulating activities will be provided in groups with each comprising 3-4 participants. Grouping of participants will be dependent on their availability and thus the abilities of the PWA in cognition and language might vary. In each session, the participants will take part in three group activities in which various cognitive skills are required. Some of the activities are adapted from a series of game-based activities for the Chinese elderly developed by The Jockey Club Center for Positive Ageing (JCCPA; 2008, 2009, 2012), in which the activities will be designed in accordance with principles of CS. Activities that use linguistic materials will be replaced with non-linguistic stimuli, e.g., in a card searching game written words will be replaced by numbers or shapes so that the procedures and cognitive components involved remain highly similar to the original version. Other activities will employ materials borrowed from the toy library for the elderly hosted by the Hong Kong Lutheran Social Service. All PWA will receive a total of 12 one-hour language treatments carried out twice a week. The treatment protocol is adapted from the procedures described in Hopper et al. (2002) with some modifications. Given the limitations in resources available and time constraints, the instructional session included in the original protocol in which the dyad and the clinician watch the pre-treatment story probing video together and discuss the communication strategies will not be implemented. Instead, the strategies will be explained to the dyad at the beginning of the language treatment session.

Intervention Type
Behavioural

Primary outcome(s)
1. Ability in a conversation, measured using short stories depicted in comics and short videos which the participant must converse the meaning with a communication partner who is naïve to the content.
2. Cognitive performance:
2.1 Digit span forward and backward
2.2 Wisconsin Card Sorting Test
2.3 Test of Nonverbal Intelligence
2.4 Attention Network Test
2.5 Stroop Color-word Test
Pre-treatment assessment will be carried out twice with all the language and cognitive tasks described above; three more assessments were conducted in the 8th, 12th, and 20th week, corresponding to the performance of PWA in the middle of the treatment block, immediate post-treatment and eight-week post-treatment, respectively.

Key secondary outcome(s)
The Cantonese version of the Main Concept Analysis (Kong, 2011) conducted at baseline and in the 8th, 12th, and 20th week. The participants' verbal descriptions based on four sets of picture-sequence were audio-recorded. The number of main concepts (i.e. number of statement that contained one verb with one or more pieces of essential information that are accurate in relation to the picture stimuli) produced by each participant was calculated and compared with normative data.

Completion date
31/03/2020

Eligibility

Key inclusion criteria
1. Native speakers of Cantonese
2. Chronic aphasia with onset more than 6 months
3. No reported progressive neurogenic etiologies (e.g. dementia, Parkinson’s Disease)
4. No motor speech disorders of moderate to a severe level
5. No reported hearing and visual impairments
6. Age 18 years or above

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Sex
All

Total final enrolment
53

Key exclusion criteria
Patients with other neurogenic disorders such as dementia, Parkinson's disease

Date of first enrolment
01/05/2018

Date of final enrolment
31/03/2020

Locations

Countries of recruitment
China

Hong Kong

Study participating centre
Aberdeen Kaifong Association
Room 419-434, G/F
Wah Mei House
Wah Fu Estate

Hong Kong
Hong Kong
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Study participating centre
Haven of Hope Christian Service Haven of Hope Community Rehabilitation Day Centre
1/F, Tang Shiu Kin Community Ambulatory Care Centre
282 Queen's Road East
Wan Chai
Hong Kong
Hong Kong
-

Study participating centre
The Neighbourhood Advice-Action Council NT West Community Rehabilitation Day Centre
G/F, Wu Kwong House
Wu King Estate
Tuen Mun
New Territories
Hong Kong
Hong Kong
-

Study participating centre
SAHK NT East Community Rehabilitation Day Centre
G/F, Luk Chuen House
Lek Yuen Estate
Shatin
New Territories
Hong Kong
Hong Kong
-

Study participating centre
Together Home Care Service for Persons with Severe Disabilities
Units 29-32, G/F
Hing Ping House
Tai Hing Estate
Tuen Mun
New Territories
Hong Kong
Hong Kong
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Sponsor information

Organisation
University of Hong Kong

ROR
https://ror.org/02zhqgq86

Funder(s)

Funder type
University/education

Funder Name
University of Hong Kong

Alternative Name(s)
The University of Hong Kong, Hong Kong College of Medicine for Chinese, Universitas Hongkongensis, , HKU

Funding Body Type
Government organisation

Funding Body Subtype
Universities (academic only)

Location
Hong Kong

Results and Publications

Individual participant data (IPD) sharing plan
IPD will be uploaded to Harvard Dataverse, a publicly available repository (https://doi.org/10.25442/hku.14140967.v1). It will also be available as a supplement to the results of publication.

IPD sharing plan summary
Stored in publicly available repository, Published as a supplement to the results publication

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		08/07/2022	20/12/2022	Yes	No