FACULTEIT GENEESKUNDE EN GEZONDHEIDSWETENSCHAPPEN

Dysphagia, dysarthria and aphasia post-stroke: from epidemiology to technology-delivered aphasia therapy

Elien De Cock

Thesis submitted to fulfill the requirements for the degree of Doctor in Health Sciences

- 2021 -

UNIVERSITEIT GENT

Summary of the research

Stroke is one of the leading causes of disability and death in adults. The most common type is ischemic stroke, caused by an artery blockage resulting in a lack of blood and oxygen supply to the brain. Advancements in acute stroke care such as the implementation of acute reperfusion therapies can lead to timely recanalization of the occluded artery, improving functional outcomes following stroke.

Dysphagia, dysarthria and aphasia are common symptoms following stroke, respectively affecting swallowing ability, speech and language. Several studies have investigated how often these symptoms are present in the acute phase post-stroke, but frequencies differ considerably between studies and few have looked at how often dysphagia, dysarthria and aphasia co-occur. In addition, most studies were performed before the implementation of acute reperfusion therapy. Therefore, the first part of this dissertation was to investigate the incidence and associated factors of dysphagia, dysarthria and aphasia in the acute phase following a first-ever ischemic stroke. The findings of the study demonstrate an overall high incidence and co-occurrence of all three disorders.

Knowledge about post-stroke dysarthria is very limited. Therefore, the speech characteristics, dysarthria type and severity of the dysarthric stroke patients was determined via standardized assessments.

It is well known that aphasia has a major impact on a person's quality of life, even more so than cancer and Alzheimer's disease. Aphasia therapy can lead to language improvements, especially when delivered intensively (> 8 hours per week). The second part of this dissertation focused on **technology-delivered aphasia therapy** as a means to intensify treatment.

Three prospective studies were conducted to evaluate the feasibility, efficacy and clinical implementation of technology-delivered treatment.

To summarize, the findings of these studies demonstrate that although some barriers were reported, tablet-based aphasia therapy as add-on to usual care is feasible in patients with aphasia following stroke. Regular contact with a speech-language pathologist is considered a key factor for successful technology-delivered treatment. Whether intensifying therapy through independent tablet-based aphasia therapy at home as add-on to conventional aphasia therapy remains to be further investigated. Lastly, although not yet established in clinical practice, the majority of speech-language pathologists is willing to use technology-delivered aphasia therapy in the future.

Short Curriculum Vitae

Elien De Cock (°10/04/1990) graduated in 2012 as a speech-language pathologist at Ghent University Hospital. During her education, she developed a strong interest in neurological swallowing- and communication disorders, which she was able to put into practice during her internships at hospitals and rehabilitation centers. After her studies, she started working at an independent speech therapy practice, where she further gained experience in the treatment of a variety of neurological disorders. In 2017, she successfully finalized a Postgraduate in Dysphagia at Artevelde University College and she began her current research at Ghent University Hospital. The main focus of her research was dysphagia, dysarthria and aphasia following stroke. Findings of the research were presented at numerous national and international conferences and were published in several peer-reviewed journals.

Promotors

Prof. Dr. Veerle De Herdt
Promotor
Faculty of Medicine and Health Sciences
Ghent University, Belgium

Prof. Dr. Kristine Oostra
Co-promotor
Faculty of Medicine and Health Sciences
Ghent University, Belgium

Dr. Katja Batens
Co-promotor
Faculty of Medicine and Health Sciences
Ghent University, Belgium

Public Defense

20/04/2021 - 10 am

Due to the national security measures regarding COVID-19, the public defense will be held online. Please turn off your microphone and camera when entering and during the entire meeting.

Examination board

Prof. Dr. Marie-Anne Vanderhasselt
Chair
Faculty of Medicine and Health Sciences
Ghent University, Belgium

Prof. Dr. Kristl Vonck
Secretary
Faculty of Medicine and Health Sciences
Ghent University, Belgium

Prof. Dr. Katie Bouche
Faculty of Medicine and Health Sciences
Ghent University, Belgium

Prof. Dr. Miet De Letter
Faculty of Medicine and Health Sciences
Ghent University, Belgium

Dr. Rebecca Palmer
School of Health and Related Research
University of Sheffield, England

Prof. Dr. Yves Vandermeeren
Faculty of Medicine and Dentistry
Catholic University of Louvain, Belgium

Prof. Dr. Maaike Vandermosten
Faculty of Medicine
University of Leuven, Belgium

Funding

This research was funded by the Institute of Neuroscience (Ghent University Hospital)

CONTACT
Elien De Cock
evedcock.decock@ugent.be

Prof. Dr. Veerle De Herdt
veerle.deherdt@ugent.be

Department of Head and Skin
Research lab 4Brain
T +32 9 000 00 00
www.4brain.be

FULL TEXT
Will be made available online at www.lib.ugent.be

UNIVERSITEIT GENT