Practical Aspects of Usage of Alternative and Augmentative Communication Symbols in Speech Rehabilitation of People with Aphasia

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PROBLEM

Convention on the Rights of Persons with Disabilities in Article 21 determins that states parties shall take all appropriate measures to ensure that persons with disabilities can exercise the the right to freedom of expression and opinion, accepting and facilitating the use of sign languages, Braille, augmentative and alternative communication, and all other accessible means, modes and formats of communication of their choice by persons with disabilities in official interactions.

Speech problems are one of the main consequences of neurological diseases like a brain stroke and other health disorders in adults and aged people. Speech and communication impairments influence the quality of life and limit social integration of people who suffer from aphasia. An impairment of speech (language) affects production or comprehension of speech and the ability to read or write. Aphasia is always due to injury to the brain, most commonly from a stroke, particularly in older individuals.

Alternative and augmentative communication (AAC) is an effective tool in rehabilitation of speech and communication impairments as well as a compensatory opportunity for people with aphasia. By definition of the International Society of Augmentative and Alternative Communication AAC is a set of tools and strategies that an individual uses to solve everyday communicative challenges. It is traditionally devided to «low tech» (gestures, facial expressions, touch, sign language, symbols) and «high tech» speech-generating devices.

These practical survey explores the process of AAC symbols usage in an early period after a brain stoke in 90 patients. Reviews where made by 9 specialists based on observation and speech status assessment. Results were analyzed as percenteges of answers about patients` progress in communication using nominative and range scales.

RELEVANCE

By statistics of the Center of Public Health of the Ministry of Healthcare of Ukraine, each year 100 000–110 000 brain strokes happen (and 1/3 is in people of working age), and only 10% come back to a previous level of life functioning.

One of the main consequences of the stroke is a speech disorder, mostly aphasia. It reduces patients communication and social connections as well and dramatically affects patient's personality.

A major current focus in modern research is upon an early rehabilitation in order to give a patient back lost skills and support to communicate and be socially connected. It generated considerable recent research interest to involve different analyzators and explore an efficiency of such methods to restore speech and ability to communicate.

Much research about AAC in recent years has focused on children and speech and communication skills formation. In cases of aphasia we deal with rehabilitation of a speech (language) and communication, in order to re-train lost or decayed skills. There is much less studies describing the process of AAC symbols usage in adults and aged people.

In Ukraine there is a lack of AAC symbolic systems adapted to Ukrainian language grammar structure. Also pictures used in AAC systems must reflect local context to be easily understood to people who lost an ability to produce or perceive speech.

This research focuses on observation of practical aspects of AAC usage in cases of aphasia using symbols in Ukrainain that also reflect local social environment.

PROJECT GOALS

1) To explore a communicative response to used AAC symbols in early speech rehabilitation of patients after a brain stroke. The period after an injury was between 2 days and 2 weeks.

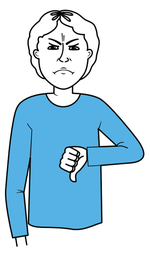
3) A central issue was to study cases of AAC usage and to describe a process of understanding of images by patients, difficulties and improvements noted during the survay.

4) To expore whether patients identify images with real objects, concepts, states.

2) To register by observation a progress in patients communicative activities, AAC symbols usage and speech status assessed by a nominal scale.

Stimuli material - cards with symbols - engage different sensor systems: tactile, audial (verbalization by a specialist), visual. Modern scientists suggest to involve various analyzators in speech reactivation. Communication-based (also called consequence-based) therapies are intended to enhance communication by any means. These therapies involve real life communicative challenges (G. Albyn Davis, 2011). The aim of a current research is a review how assistive technologies used are to improve communication process. By current research it helps to reconstruct a connection between a symbol, a word and a concept and in turn it improves patient` s emotional state (Lianna, 2015).

Good



Bad

Eat

METHODOLOGY

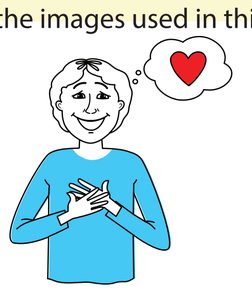
We conducted an online survey, 8 professionals (7 clinical logodegists (speech therapists) and 1 doctor, neurologist) filled a survey form with results of observation patients with aphasia during speech rehabilitation and correction interactions, 90 patients in total. The observation took place at medical institutions during the first 14 days of rehabilitation after the injury .

Stimuli materials - 38 cards with symbols set and an instruction to it - were developed by Belarus aphasiologist, speech therapist, Yulia Labkova together with the team and volunteers of a Ukrainian social enterprise «DyvoGra». The main goal of this tool is to assist patients and their caregivers in communication.

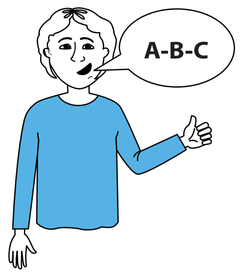
We assessed the statement whether there was a positive dynamics in speech status with nominal scale («yes» or «no»), though it might be provoked with other factors as well.

We used a nominal scale as well in order to specify whether patients understood images and identified them with real objects, states or needs or actions. We asked professionals about both patients **understanding** of images and cards choices (**usage**) when patients had intentions to communicate. Images showed nouns, emotional states and often used verbs. Pictures below illustrate a style and a structure of the images used in this research.

Headache



Love



Speak

RESULTS

Our intention was to observe visual low tech AAC usage (pictures with symbols) in early speech rehabilitation in aphasia cases.

We reasoned that assistance in communication will not only improve speech status but will also enhance patient`s emotional state.

We obtained quantitative results that 70% of patients showed positive emotional reaction towards cards usage in communication. That is in line with other researches (Lianna O., 2015, Zarytska, 2013). Professionals admitted that in 95% of cases patient`s speech status improved though we cannot avoid an influence of other factors towards it within the scope of this study.

In most cases, patients had a positive dynamics on speech reconstruction and specialists reported on patients` rising motivation to communicate with caregivers. It is important to admit that a patient used a card to remember a word or a concept, and as soon as he/she was able to reproduce at least the first syllables of it and be understood, a patient did not need a card and started to verbalize an answer, a wish or a request.

This confirms that communication with symbols could be not only alternative communicative tool (speech replacement), but an augmentative and assistive technology (language support) that can reinforce a speech restore in cases when it is possible.

DISCUSSION

As outlined in Relevance section, communication progress in rehabilitation improves further social integration of a person with aphasia.

This study suggested that AAC symbols usage is connected to speech progress in early rehabilitation of patients after a brain stroke. We think that this attempt can attract much attention to a possible experimental research about AAC visual stimuli effectiveness in aphasia cases.

Further research about speech and communication rehabilitation is vitally important for several reasons:

- scientifically proved evidence of early speech rehabilitation is important to health care planning,

- AAC usage rises quality of life of people with speech loss and serves for advocacy of rights of people with disabilities.

We regard a further research of quality of life of people with aphasia using AAC in a long term perspective. Influence of AAC usage to memory processes, attention, dyspraxia disorders at individual and group dynamics is also to be explored.