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EDITORIAL

Executive Functions and Operating Communication in Aphasia

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EDITORIAL

Executive function among people with aphasia has also been linked to their level of functional communication, affecting the macro level of speech organization rather than the level of word/phrase structure [1,2]. A similar relationship between executive functions and speech skills has also been shown for people with traumatic brain injury in whom storytelling skills have been linked to shift skills [3]. In particular, the poor score in the WCST was associated with a low score in the measurements of the structure of a story, but not with a poor performance in the measurements of the production of sentences and coherence. The contribution of executive functions to functional communication between people with aphasia probably represents the inability to make connections between the extent of their language deficit and the degree of successful speech (eg any possible executive function can positively affect good shaping a discussion even if there are difficulties in finding words) [4,5].

Studies on aphasia that explore the relationship between executive function and speech ability [6] often define functional communication as the ability to communicate a message effectively in a natural environment, using ways that could include grammatical structures or other modes of communication, such as appropriate gestures [7,8]. Reduced executive shift has been found to limit the extent to which people with aphasia can use alternative non-linguistic means of communication in conversation, because these people are trained to use alternative gestures and pictorial symbols, do not focus on these details, even in cases failed verbal communication [9]. Such executive problems - measured by poor performance on tests of attention shift, working memory, and concept formation - have been found to limit a person with aphasia's ability to focus, resulting in patterns of language obsession and difficulty in choosing a speech strategy, especially in multi-stakeholder situations [10] .

The success of a transaction with an aphasic interlocutor depends largely on six executive functions: monitoring, self-regulation, planning, monitoring of incoming information, switching and regulating cognitive resources [2]. In their absence a person with aphasia may fail to consider the questions addressed to him or her, to ignore requests for clarification, to confirm common knowledge, to define a strategy for dialogue (e.g. type questions yes/no), monitor what is being said or what needs to be said, suspend an inappropriate answer and form/understand new concepts/ideas [6]. In a study of twenty people with aphasia, Ramsberger and Rende in 2002 found that 8 out of 9 executive measures were significantly correlated with the variables of successful speech.

Comparable findings were also reported by Fridriksson in 2006, who noted significant correlations between sequence execution measures, inhibition, programming, cognitive flexibility, working memory, attention, perception, and motor skills. The tests used included executive tasks, such as the WCST and the Color Trails Test and the four American Speech-Language Hearing Association evaluation indicators Functional Assessment of Communication Skills for Adults [7]. The results showed that the participants with the highest number of prompts and errors in the executive trials, were also those with lower independence in speech and quality.

Importantly, executive skills have been reported to have a remedial effect on speech skills [2]. Using neuropsychological methods to control attention, verbal and non-verbal working memory, memory, design and creative meaning, as well as speech analysis methods, Frankel and colleagues found, for example, that the retained Intervention control and scheduling are accompanied by good concentration and monitoring of the content of the conversation and that the memory for the above information goes hand in hand with planned speech strategies, reception activation and topic management [10].

Therefore, we find that the influence of executive functions on the functional communication of people with aphasia is crucial. Multiple researches pose the presence of executive functions as a remarkable factor both for a successful and efficient communication between people with and without aphasia and for the positive effect they have on speech skills.

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