

Mental Empowerment and Speech Therapy in Alzheimer's Disease and Mild Cognitive Impairment

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Abstract

Speech is a cortical function and includes an ideational, motor and sensory part for understanding and expressing spoken and written language.

Huge scientific interest includes research around speech disorders, aphasiology, dementia and especially Alzheimer's Disease (AD).

It has already been scientifically proven that aphasia is present in all dementias and is indeed included in the diagnostic criteria as well. Schematically, NA can be divided into three stages. Given the difficulty in developing effective pharmaceutical treatments for dementia and considering the significant social dimension of the disease, a variety of alternative psychosocial, non-pharmacological strategies are widely used in its treatment.

Physical, mental, social activities that can maintain or improve the mental status, functioning and quality of life of people with dementia are defined as non-pharmacological interventions. In addition, non-pharmacological psychosocial interventions are also important as a preventive measure in mentally healthy elderly people, since their goal is to slow down the aging of the brain.

Non-pharmacological interventions have the advantage of having no side effects for the patient and are quite flexible as they are adapted to the needs of each patient. They are carried out in the form of individual or group programs and differ in terms of goals and form depending on the stage of the disease and the characteristics of each one. Especially in Mild Cognitive Impairment (MCI) things can be quite challenging for both therapist and patient, as the therapist tries to intervene by strengthening the cognitive functions only.

The main non-pharmaceutical interventions are Mental Empowerment and Speech Therapy.

This is the most effective non-pharmacological intervention and is applied in combination with medication, if available, and aims to stabilize or even improve the patient's cognitive status or contribute to the prevention of dementia, through the utilization of his existing cognitive functions, such as Memory, Reason, Attention, Concentration and Judgment. The program is aimed at healthy people to strengthen the cognitive functions of the brain, as well as people with cognitive difficulties.

Keywords:

Alzheimer's disease, AD, Mild Cognitive Impairment, MCI, speech, aphasia, Mental Empowerment, Speech therapy

Mental Empowerment and Speech Therapy in Alzheimer's Disease

Speech is a cortical function and includes an ideational, motor and sensory part for understanding and expressing spoken and written language.

Huge scientific interest includes research around speech disorders, aphasiology, dementia and especially Alzheimer's Disease (AD). It has already been scientifically proven that aphasia is present in all dementias and is indeed included in the diagnostic criteria as well. Specifically, the first Alzheimer's patient was aphasic. However, aphasia as a key feature of AD has been highlighted relatively recently.

AD is the most common form of dementia, accounting for 2/3 of all dementias. It used to be considered relatively rare and limited to people under the age of 65. In fact, in the first half of the 20th century, only 100 cases of the disease were described. Today we know that the exact opposite is true: the disease is particularly common, especially in developed countries, while its frequency increases exponentially with age. In fact, age is the most important risk factor for the application of the disease. Between the ages of 65 and 85 the prevalence of the disease increases continuously, reaching an impressive 35-40% at the age of 85.

AD is not related to normal aging and is characterized by abnormal functional decline of brain functions. Within the affected brain functions, speech plays a key role. Language impairment in AD is already evident from the early stages of the disease. All AD patients present with aphasic speech disorders with increasing dementia severity. AD accelerates speech decline regardless of the patient's age, relative to the decline seen in normal aging and in mild cognitive impairment (MCI). Also, the type of speech impairment in AD is different from that in Vascular Dementias or Front Temporal Dementias. The functional use of language, or pragmatics, contributes most to the communication deficit in dementia. Poor topic maintenance, short but frequent changing of conversation topics, request for more instructions, interruptions in speech with many ambiguities, incoherent speech, difficulty maintaining eye contact, and difficulty yielding the floor to other persons in the conversation are observed. Factual deficits can depend on the type of conversation. Speech in AD patients is described as speech with less coherence, disordered and reduced content, and heavy use of indefinite references. Lexical-semantic deficits in AD are characterized by a limited vocabulary and

difficulty in naming, which are likely caused by a disruption in cognitive processing, perhaps at the preverbal level. Vocabulary difficulty is one of the earliest deficits seen in people with dementia. Naming difficulty is the subject of most research on speech disorders in dementia. The majority of researchers seem to support the view that the initial disruption in word retrieval is due to a cognitive rather than a perceptual deficit.

Moving on, the syntax remains intact in the NA, except of course for the last stage. However, grammatical errors, such as missing phrases and sentences, as well as sentence breaks and grammatical inconsistency, have been reported. Comprehension of syntax is relatively more impaired than production. The explanation may be that syntax is a relatively automatic cognitive function that is preserved in the midst of a more general cognitive decline.

Regarding phonology, phonological deficits in people with AD occur rarely and in advanced stages of the disease. Although errors have been reported in various studies, these appear to be indicative of a 'higher' semantic or syntactic problem rather than a problem with individual 'speech sounds' or morphemes (individual linguistic units that mark a change in meaning).

Schematically, NA can be divided into three stages.

In the first stage of NA in terms of pragmatics, there is difficulty in using nominal references, a difficulty in coherence, guidance, telling stories, understanding humor and sarcasm is recorded, there is difficulty in understanding abstract concepts, difficulty in initiating speech as and in maintaining the same topic of discussion. Vague use of language is also recorded, while frequent clarifications are requested. In semantics there is difficulty in finding words and frequent use of paraphrases or even gestures. In syntax and phonology at this stage we encounter no errors in general.

In the second stage of moderate NA in pragmatics we have poor use of nominal reference, poor coherence and poor subject maintenance. Expression of fewer ideas and frequent repetitions are observed. The discourse relies more and more on stereotypical expressions. In semantics there is poor word flow with reduced vocabulary and increased use of paraphrasing and inappropriate substitutions. The empty word is often used. The syntax is marked by occasional grammatical errors and difficulty in understanding complex structures. In phonology no error is observed in general.

In the third so-called and advanced stage of Alzheimer's Disease there is a lack of coherence, difficulty maintaining eye contact, expression of a few unrelated ideas, persistence and speech without meaning even slurred speech. In semantics, paraphasias, echolalia, particularly poor comprehension, severely impaired naming, frequent idiosyncrasies and unintelligible speech are observed. In the syntax, the grammar is generally maintained. There is use of fragmented and incomplete sentences and phrases, as well as poor understanding of grammatical structures. In the third stage phonological errors are more frequent. It therefore becomes clear that speech disorders accompany the disease in each of the three stages. Despite the universality of aphasia, in dementia its qualitative composition and severity varies depending on the pathological process and its location. The duty of health professionals is to first make a correct diagnosis and then formulate a complete treatment plan. What we must keep in mind is that the more accurate the diagnosis, the more effective the treatment will be. Given the difficulty in developing effective pharmaceutical treatments for dementia and considering the significant social dimension of the disease, a variety of alternative psychosocial, non-pharmacological strategies are widely used in its treatment.

Physical, mental, social activities that can maintain or improve the mental status, functioning and quality of life of people with dementia are defined as non-pharmacological interventions. In addition, non-pharmacological psychosocial interventions are also important as a preventive measure in mentally healthy elderly people, since their goal is to slow down the aging of the brain.

Non-pharmacological interventions have the advantage of having no side effects for the patient and are quite flexible as they are adapted to the needs of each patient. They are carried out in the form of individual or group programs and differ in terms of goals and form depending on the stage of the disease and the characteristics of each one.

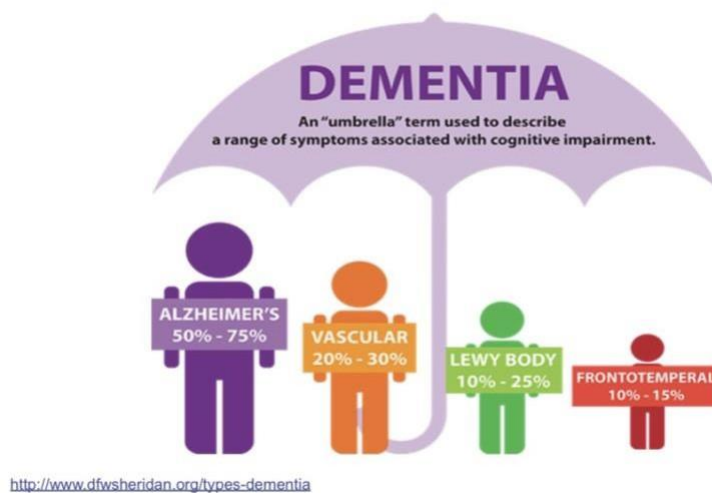
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cognitive functions of the brain, as well as people with cognitive difficulties.

What is dementia?

Dementia is originally an "umbrella" term. Dementia is used to describe brain conditions called neuro-degenerative disorders. There are several types of dementia disorders, such as Alzheimer's, Vascular, Lewy Body, Frontotemporal.



What's the Difference Between Alzheimer's Disease and Dementia?

Alzheimer's Disease is the most common form of dementia accounting for 60-80% of all dementia disorders. Then, there's also Vascular Dementia (15-25% of all dementia disorders), Lewy Body Dementia (5-10% of all dementia disorders), Frontal-Temporal Dementia (approx 5%), and many other types.

It's very important to know that more than one type of dementia disorder can affect a person at the same time. There is most commonly a combination of Alzheimer's Disease and Vascular Dementia. Unfortunately, there is no cure for dementia. It is a degenerative disease of the brain that worsens over time. It commonly starts with memory loss and ends with severe functional decline.

Aging can affect our ability to remember things. Forget small details about our past is normal for an old person. It is important to know that normal age-related memory loss doesn't prevent you from living a productive and independent life. As we grow old, it's normal to forget a person's name, but recall it later in the day. You might misplace your glasses, then realize you're wearing them. Or maybe you need to make lists more often than in the past in order to remember appointments or other tasks.

These changes in memory are generally manageable and don't disrupt the ability to work, live independently or maintain a social life. Memory loss is not the only change that happens in the brain as we age. There are some positive changes too. Recent research out of Trinity College Dublin found that older adults tended to find it easier to focus, were less anxious, and were in better control of their brains. On the other hand, there were many anxious people with panic attacks who couldn't focus or remember.

Mild Cognitive Impairment

What is mild cognitive impairment?

Mild cognitive impairment (MCI) is a condition affecting the brain. It is defined by problems with memory, speech, or decision-making. The symptoms of MCI are not as severe as other major neurocognitive disorders, like dementia disorders (e.g., Alzheimer's Disease, Vascular Dementia, etc).

Dementia disorders tend to result in declines in functioning over time, whereas MCI results in "inefficiencies" in daily life tasks. For example: Tasks may take you longer to complete, though you will likely still be able to complete them.

Having MCI does not mean that you will develop dementia, though it does mean that your risk for dementia may be higher. MCI is described as the stage between typical changes with the brain as we age and dementia.

According to the Mayo Clinic, the group associated with uncovering MCI, around 10% to 15% of individuals with MCI go on to develop dementia each year.

As we age, there are common changes in cognitive function. While some little decline in cognitive ability may be considered a normal part of aging, other people may experience much more significant changes that most of the time impact daily functioning. Mild cognitive impairment (MCI) is a condition in when an individual experiences a sudden decline in cognitive function. It's very important that this decline is beyond if what is considered normal for their age. On the other hand, this decline is not that severe enough to meet the criteria for dementia. This condition can impact a variety of cognitive functions, such as memory, attention and problem solving. An individual's life can be significantly impacted.

Despite the universality of aphasia, its qualitative composition and severity varies depending on the pathological process and location. It is the duty of health professionals to put forward an accurate diagnosis and then design a complete treatment schedule. What we ought to have in mind is that the more accurate the diagnosis is, the more effective the treatment will be.

Mild Cognitive Impairment (MCI) is considered to be a precursor of AD. MCI patients show memory impairments or disruptive thinking and difficulty in making decisions, but their daily activities remain intact (i.e. they cook, drive, have sense of orientation, take care of themselves, take their medicine by themselves). It is important for the diagnosis of the disease that those impairments not be compatible with the patient's age and the typical aging process. For instance, we should not be referring to MCI when a 90-year-old patient shows mild memory impairment symptoms, but such symptoms play a crucial role in the diagnosis if they are found in a 60-year-old person (Tsolaki, 1997, Tsolaki, Kazis, 2005). Epidemiological studies have shown that 10 to 20% of the people over the age of 65 suffer from MCI. Half of them deteriorate in the next 5 years and are diagnosed with AD.

Development of brain functions in MCI

MCI is divided into two subtypes:

MCI Amnesic Type: One may start forgetting important information which he or she used to remember easily, such as meetings, conversations or recent events.

MCI Non-Amnesic Type: Certain brain functions are affected, but memory remains intact. The abilities that can be affected by Non-Amnesic MCI are those of decision making, sound recognition and sense of time. In other cases, patients are unable to follow the steps required to complete a complicated task or their visual perception might deteriorate.

Speech therapy and mental empowerment are crucial because throughout everyday exercises and mental work, the MCI patient would, in many cases, be able to keep his/her memory in action as long as possible.

Individuals with MCI may also face cognitive processing disorder (CPD). This can affect their ability to process and comprehend information. People with CPD may have difficulties with language, auditory and visual processing. Unfortunately, the symptoms of CPD can be similar to those of MCI. Our patients can have difficulty with attention and problem-solving abilities. Speech language pathologists can play a crucial role in helping individuals with CPD and MCI, providing personalised interventions and strategies to support the patients in managing their symptoms. An SLP can use memory aids, visual aids and other strategies to help the patients improve not only their attention and problem-solving abilities but also their cognitive function and overall their quality of life.

Cognitive-communication training: This type of therapy focuses on improving communication and cognitive function by targeting specific cognitive abilities, such as memory, attention, and problem-solving. SLPs may use activities such as word games, puzzles, and memory exercises to improve cognitive function.

Memory aids: SLPs can provide memory aids, such as calendars, checklists, and reminder notes, to help individuals with MCI and CPD manage daily activities and appointments.

Visual aids: SLPs may use visual aids, such as pictures and diagrams, to support understanding and memory recall.

Communication strategies: SLPs can provide strategies for improving communication, such as breaking down information into

smaller pieces, using simpler language, and giving additional time for processing information.

Executive function training: This type of therapy focuses on improving executive function skills, such as planning, organization, and problem-solving. SLPs may use activities such as role-playing, problem-solving tasks, and goal-setting exercises to improve executive function skills.

It is important to note that speech therapy is just one approach to managing cognitive impairment, and a multi-disciplinary approach may be needed, including input from a physician, occupational therapist and neuropsychologist.

Discussion

Through the program, the personalized evaluation of the patient's mental abilities and needs is achieved. Memory, speech attention and critical thinking exercises are worked on. Orientation to space, time and topicality is practiced. Learning or relearning skills through the use of board games, through art therapy and healing through memories is also achieved. These programs also promote the education and involvement of family members, significantly improving the quality of life, and helping to prevent the AD that threatens most people as they age.

Finally, the mobilization of the patient is achieved, the strengthening and maintenance of his autonomy and daily functionality, contributing to a large extent to the fight against apathy, withdrawal and depressive symptoms.

We should always remember:

"Dementia is NOT a normal part of aging, the sooner you can work toward a diagnosis and plan the more empowered you and your loved one will be.

There's a common myth that with age comes dementia. Knowing the truth about memory loss, mild cognitive impairment (MCI), and dementia will help you navigate memory changes in your older loved one".

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