

Rehabilitation of Communication Functions in People with Neurodegenerative Disorders.

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Abstract:

The term "dementia" refers to any condition in which a variety of different brain functions, such as memory, thinking, perception, language, planning and personality, gradually deteriorate over time. Dementia is not considered a natural part of ageing, as it is normal for people to become increasingly forgetful over time without necessarily having dementia. The most common type of dementia is Alzheimer's disease. The term is used to describe many brain disorders and medical conditions. This study focuses on different types of dementia, explaining the nature of this cognitive disorder, cognitive and communication impairments in people with dementia, the role of caregivers, and important therapeutic approaches to managing dementia.

Keywords: Neurodegenerative disorders (dementia), cognitive and communication impairments, role of carers, therapeutic approaches and interventions.

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Introduction:

Neurodegenerative diseases are numerous and cause significant impairments and symptoms. This paper will focus on communication impairments in Alzheimer's disease dementia (ADD), which accounts for 70% of dementia cases. It will also highlight the main classifications of dementia and discuss different therapeutic approaches to cognitive and communication impairments in dementia, emphasising the important role of speech and language pathologists in the management of these disorders.

Dementia describes various symptoms of cognitive decline, such as memory loss, which is a significant symptom in many cases of brain disorders. It is a broad term that includes symptoms that affect memory, communication and thinking. Although the likelihood of developing dementia increases with age, it is not a natural part of ageing.

1- Definition of dementia:

According to the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), dementia is defined as a severe impairment of intellectual and cognitive functions sufficient to cause a loss of self-control in daily living or social interactions. It develops progressively at least every six months and is characterised by a consistent presentation of memory impairment and a decline in the ability to learn new information or recall previously learned information. This presentation is persistent, early onset and pervasive.

2- Classifications of dementia:

There are several classifications of dementia based on the part of the brain affected:

1-2 Cortical dementia:

This type is caused by problems in the cerebral cortex, which plays an important role in language and memory. People with cortical dementia experience severe memory loss, difficulties with word retrieval and comprehension, and conditions such as Alzheimer's disease and Creutzfeldt-Jakob disease are examples of cortical dementia.

2-2 Subcortical dementia:

This type of dementia is caused by damage to the regions of the brain below the cortex, leading to changes in thinking speed and ability to carry out activities. However, people with subcortical dementia do not usually have memory or language problems. Examples of this type of dementia include Parkinson's disease, Huntington's disease and progressive supranuclear palsy (PSP).

3-2 Vascular dementia:

Vascular dementia is caused by damage to the blood vessels that supply the brain. Vascular problems can cause stroke or brain damage, such as damage to the white matter fibres. Common symptoms of vascular dementia include difficulty solving problems, slow thinking, difficulty concentrating, and executive function problems that are more pronounced than memory loss.

4-2 Frontotemporal dementia:

This condition involves damage to the frontal and temporal lobes of the brain, which occurs when brain cells die due to the presence of abnormal protein aggregates within them. The common symptoms of this disease affect behaviour, language, thinking and communication.

5-2 Lewy body dementia:

Lewy body dementia occurs when abnormal structures called Lewy bodies develop in the brain. These brain changes involve a protein called alpha-synuclein, especially in the early stages. Symptoms include fluctuations in alertness, visual hallucinations, difficulty estimating distances,

mild impairment of executive function but less severe than in Alzheimer's disease, and motor symptoms such as tremors.

6-2 Mixed dementia:

Some people may experience a combination of two types of dementia, such as Alzheimer's disease and vascular dementia or Lewy body dementia, because both areas of the brain are affected.

3- Cognitive impairment in dementia:

Dementia, especially cortical dementia, can lead to cognitive decline and significant heterogeneity among individuals, meaning that each patient has a specific clinical profile with varying degrees of severity (Colette, van der Linden 2002).

1-3 Memory problems:

Memory problems are often one of the earliest symptoms of dementia. It begins with mild deficits that may resemble normal age-related changes, but gradually worsens and significantly affects all aspects of memory. One of the most affected forms of memory is explicit memory, which is the conscious recall and awareness of factual information, past experiences and previously learned concepts stored in memory. Explicit memory can be divided into four categories: episodic memory, semantic memory, spatial memory and autobiographical memory. In comparison, implicit memory differs from explicit memory in that it has a broader scope of understanding. It includes all kinds of procedural knowledge that people use in their daily lives. Another difference between implicit and explicit memory is that implicit memory tends to be more stable and last longer than explicit memory. Procedural memory is one of the best known forms of implicit memory.

In dementia, episodic memory, which involves recalling past events and memories, is primarily affected, while the encoding of semantic memory (knowledge about concepts and facts in the world) is relatively preserved. Procedural memory remains relatively intact in the early stages of dementia until the disease progresses to advanced stages.

2-3 Verbal language disorders:

Cardibatt, Ait-Ameur and Boyle (1995) describe the language disorders in patients with Alzheimer's disease based on the classification of aphasia. In the early stages of the disease, the authors agree that there is a semantic-lexical disorder, while grammatical and phonetic abilities are preserved (Rousseau, Cardibatt et al., 1995). This disorder, which is the first sign of language impairment, leads to difficulties in word finding or even the inability to produce the appropriate word due to the involvement of the patient's language processes. It is compensated by the use of phrases or circumlocutions. There are also semantic-verbal disorders, such as semantic-verbal paraphasia (substitution of one word for another related to the target word).

Lexical fluency (the ability to orally produce a series of words on a given topic) is generally impoverished in the form of alphabetical phrases.

However, oral and written comprehension is well preserved, as is the ability to repeat and read aloud.

In the middle stage of the disease, there is a worsening of the semantic-lexical disorder. Word finding difficulties become more pronounced and semantic discourse becomes more repetitive. The patient exerts considerable effort in speaking, leading to breakdowns in fluency, resulting in speech that appears incorrect (Cardibatt et al., 1995). Nevertheless, grammatical skills remain superior to semantic-lexical skills at this stage of the disease. Speech production and reading aloud with a loud voice are preserved.

Finally, in the advanced stages of Alzheimer's disease, both expressive and receptive language are severely affected. Most patients express themselves using unintelligible language (jargon), characterised by automatic repetition of one or more words (logoclonia) or intermittent repetition of a phonemic segment or echo of sound (echolalia). Some patients may have mutism. Cardibatt et al (1995) found that in some cases there is a high incidence of phonemic errors (phonemic paraphasia), involving errors in the order of the sounds that make up the target word.

3-3 Cognitive impairment:

People with Alzheimer's disease may experience a variety of cognitive impairments, including agnosia (difficulty recognising stimuli in the absence of a primary sensory deficit). They may experience visual agnosia, auditory agnosia, tactile agnosia, difficulty recognising their own body parts and difficulty recognising faces.

4-3Apraxia:

Some people with Alzheimer's disease may experience ideational apraxia, which includes difficulty with drawing and assembling shapes. They may also experience face and limb apraxia, which refers to the inability to make purposeful gestures (e.g. yes/no gestures) or symbolic gestures.

5-3Executive function disorders:

People with cortical dementia, such as Alzheimer's disease, often have difficulties with organisation, planning, motivation and verbal fluency. They may also have difficulties with abstract thinking, decision making and cognitive flexibility, as well as an impaired ability to inhibit automatic behaviours.

6-3 Psychiatric and behavioural disorders:

The most common psychiatric and behavioural disorders observed in people with cortical dementia include depression, personality changes, hallucinations, anxiety, irritability, inappropriate behaviour, and paranoia.

4-Rehabilitation of cognitive and communicative disorders in neurodegenerative diseases:

According to the ANAES report (2003), different methods are used in the treatment of dementia, depending on the type of stimulation used. "Cognitive and psychosocial stimulation" includes rehabilitation of memory, language, communication (speech therapy) and functional abilities (physiotherapy). It also includes psychological and social interventions, relaxation techniques (such as music, massage and environmental modification), vocational and recreational activities (such as conversation, reading and drawing), behavioural stimulation, implementation of general principles, adherence to practical life rules and behavioural approaches. Physical activity stimulation is also emphasised, including walking, exercise and gymnastics. Medical supervision is provided to prevent and treat associated diseases. Rehabilitation also deals with disabilities and impairments, such as hearing and visual impairments. With regard to the rehabilitation of memory, language, speech and verbal communication, the ANAES report specifies that relearning techniques, particularly aphasiology, are recommended. The involvement of speech-language pathologists in the functional rehabilitation team is advocated in order to maintain, adapt and develop communication functions in people with neurodegenerative disorders.

5- The role of the speech-language pathologist in neurodegenerative disorders is significant and varied:

While the concept of rehabilitation may not seem to improve the condition of a patient with progressive neurodegenerative diseases, such as Parkinson's disease or various forms of dementia, including Alzheimer's disease, the role of the speech-language pathologist becomes even more crucial.

Speech-language pathologists can contribute to the diagnostic process by providing quantitative and qualitative assessments of cognitive function. They can suggest appropriate treatment approaches, particularly in the early stages of the disease, when a cognitive therapy approach, particularly one targeting memory, may be beneficial. By intervening at the level of the underlying systems, particularly memory, the speech and language therapist can have a positive impact on the patient's condition.

In cases where the impairment is more significant and the patient is in the moderate to advanced stages of the disease, a cognitive-behavioural or environmental systems approach to communication disorders is preferred. After a thorough, rigorous and ecological assessment of the

patient's remaining communication skills, the speech-language pathologist directs treatment towards the patient and his or her environment.

Sessions with the speech-language pathologist are aimed at stimulating language production and speech so that the patient can continue to use them for as long as possible. In addition, the speech-language pathologist works with the patient's caregivers or family members to explain how they can modify their communication behaviours to adapt to the patient's specific difficulties. This approach ensures that communication continues for as long as possible, even if it is different, incomplete or non-verbal.

The role of the speech and language pathologist in neurodegenerative disorders is to modify the system in which the patient is developing, especially the small system of people around him and his family, with the aim of reducing as much as possible the factors that impair communication and increasing the factors that facilitate it. This has a positive effect on the patient and prevents them from slipping into psychological disorders that negatively affect the neurological disorders.

There are various therapeutic approaches and methods for cognitive impairment in dementia. The primary literature shows the existence of different therapeutic techniques to help people with dementia. However, there is no standardised and fixed approach, as these are progressive and heterogeneous diseases, especially those related to cortical dementia. The aim of these therapeutic approaches is not to restore lost functions or abilities in neurodegenerative disorders, because what is lost cannot be regained and any attempt at recovery would be futile. On the other hand, what is preserved at one point in time will change shortly thereafter within a variable period of time. The aim of rehabilitative interventions is therefore to work on delaying this decline as much as possible, so that changes occur as late as possible.

6- Approaches and therapeutic interventions for cognitive impairment in dementia:

The primary literature shows the existence of different therapeutic approaches to help patients with dementia. However, due to the progressive and heterogeneous nature of these diseases, especially those associated with cortical dementia, there is no single, fixed approach. The aim of these approaches is not to restore lost function or capacity in the context of neurodegenerative diseases, because what is lost cannot be regained and any attempt at recovery would be futile. On the other hand, what is retained at a given point in time will change gradually over a variable period of time. The aim of rehabilitative intervention is to work on delaying this change as much as possible.

1-6 Cognitive Behavioural Therapy (CBT):

CBT is inspired by behavioural techniques and is used in Anglo-Saxon countries. Its aim is to modify environmental variables in order to modify behaviour. It intervenes at the level of the environment, environment, intellectual and daily activities, and communication. This includes a preference for verbal and non-verbal communication in Alzheimer's patients. Therefore, a

number of communication situations are suggested to be adopted towards the patient. The most important thing is to always consider the patient as a fully competent individual, despite communication difficulties. A study conducted by Bayles and Kim (2003) suggests that behavioural interventions make it possible to maintain communication functions in Alzheimer's patients, because the current better understanding of cognitive processes allows professionals to develop behavioural strategies accordingly

2-6 Conversation groups:

The development of therapeutic groups with therapeutic goals began in elderly care institutions to address dementia for which there is currently no curative treatment. These groups include, in particular, memory therapy and validation therapy, which can be group or individual based. Carel (1990) set out to investigate the effectiveness of an equivalent group in the language of dementia patients and found that the language skills of the choice group were maintained compared to the control group, which deteriorated qualitatively. Oral comprehension was found to be particularly sensitive to conversational stimulation.

3-6 Reminiscence therapy:

This is defined as the verbal or silent recall of past events in the life of a person with dementia, individually or in a group. It consists of a series of weekly meetings where participants are invited to talk about their past lives, supported by materials such as pictures, video clips, music or meaningful objects. This is because memory for past events often remains relatively intact in cortical dementia (DTA). It has been concluded that reminiscence can be a means of communicating with people with dementia, focusing on their continuing cognitive abilities, even in advanced stages of the disease.

4-6 Validation therapy:

Validation therapy aims to communicate with older people with dementia, regardless of the stage of dementia and confusion over time (Feil 1972, Neal and Briggs 2002). It involves providing consistent and coherent behaviour to the person being cared for. For example, the therapist may rephrase a confused statement using clear words.

It emphasises speaking in a clear and slow voice using simple aids, maintaining close eye contact during conversations to support verbal communication, and more. There is no evidence that these therapeutic approaches improve or stabilise the patient's condition, but they help to make life more tolerable for the patient and their family.

5-6 The cognitive curriculum :

There is no evidence that these therapeutic approaches improve or stabilise the patient's condition, but they help to make life more tolerable for the patient and their family. 6-5 Cognitive approach: Seron et al (2000) have shown that this cognitive approach, together with

the management of memory impairment, can be effective in patients with early-stage Alzheimer's disease

It naturally involves the active participation of the carer in the assessment and rehabilitation process to ensure the systematic use of the strategies learnt in everyday life, particularly in relation to language and communication disorders. Dubois Remund (1995) demonstrated the efficacy of cognitive therapy on lexico-semantic disorders (word identification and description of corresponding images, improvement of naming ability, maintained for weeks, but the therapy has an effect only on the trained items, as no generalisation effect was observed).

6-6 De Rotron cognitive stimulation:

De Rotron also proposes cognitive stimulation programmes in a more comprehensive and realistic perspective, in the form of practical applications based on everyday situations collected during sessions (De Rotron 2003). These sessions are group-based and take place every two weeks, with the aim of creating a dynamic group conducive to social exchange and the maintenance of residual cognitive and functional knowledge. Several therapists supervise eight patients, adapting to the difficulties of practical applications according to the degree of cognitive impairment. In addition, the cognitive stimulation programme includes training for families and carers to extend the therapists' work into their daily lives. It also includes psychological support for patients, families and carers.

7-6 Ecosystemic Therapy:

Ecosystemic therapy, also known as environmental therapy, focuses on the patient within their living environment and the evolving system within it. This therapy is used in the intermediate stages of the disease.

This approach is aimed at Alzheimer's patients for communication purposes, particularly in the intermediate to advanced stages or when communication becomes difficult. Its founder, Terry Rousseau (2007), believes that environmental factors, especially those that can be adapted and modified by appropriate therapy, can help improve communication skills. However, direct factors such as neurological damage cannot be changed or controlled. Ecosystemic therapy aims to enhance preserved communication skills and prevent or delay the onset of behavioural disorders by maintaining a particular form of communication

This approach presupposes a prior assessment, the main objectives of which are to identify the patient's communication style and the factors that influence his or her communication skills. The resulting therapy aims to ensure the availability of favourable conditions for communication with the patient by creating a communication profile using the GECCO assessment network, which provides a practical analysis of the patient's communication skills. The assessment network allows the therapist to determine

- The appropriate types of language used by the patient.
- The inappropriate types of speech and their inadequacy.
- Topics of conversation and communication situations.
- The patient's behaviour and disruptive topics.

Based on this information, the therapist can take appropriate action and avoid conditions that hinder the effectiveness of the patient's speech.

Terry Rousseau summarises the main principles of this cognitive-behavioural therapy as follows

1. Present communication situations to the patient.
2. Discuss the topic in a way that ensures the patient's comfort and reassures them that they can rely on a structured discourse to build their own speech.
3. Use facilitation techniques to encourage communication in all its forms. The therapeutic effort is focused on ensuring the patient's ability to use familiar language to try to use and expand their repertoire of actions that they find difficult.

Conclusion:

The prevalence of neurodegenerative diseases is increasing significantly, and neurologists and specialist therapists are called upon to care for patients. Therefore, our initial intervention is aimed at preserving current functions and slowing cognitive decline in affected individuals. It is essential for the specialist therapist to be aware of the therapeutic approaches and interventions for patients in order to adapt their work effectively and to support the patient, their family and carers throughout their communication journey. This includes guiding, training and informing those around the patient to improve their understanding of the situation when the patient is unable to communicate effectively. This human endeavour seems well suited to the role of a specialised therapist.

References and Sources:

References in English:

- [1] Webmd.Dementia. Retrieved 18 November 2020 from <https://www.webmd.com/alzheimers/types-dementia#1>.
- [2] Markus MacGil. Dementia: Symptoms, Stage and Type. Retrieved 18 November 2020, from <https://www.medicalnewstoday.com/>

Referencees In french:

- [1] Rousseau Thierry (2018). Alzheimer's Disease and Communication Disorders (Neuropsychology) 2nd Edition. Masson Edition.

- [2] Rousseau Thierry (2002). When and Why to Perform Speech Therapy in Adults. Medical and Therapeutic Practices.
- [3] Udrey Morocutti (2010): Speech Therapy in Private Practice: Management of degenerative diseases in adults. Thesis for obtaining a certificate of speech therapy capacity - University of Nice.