Diversity of Alzheimer's disease: a review of the literature and its treatment perspectives

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Abstract: Alzheimer, is a neurodegenerative disease, that is, irreversible destruction of some neurons occurs, with this can occur the loss of functions of the nervous system. This work was developed in three stages: stage 1: the onset of the disease begins with a memory problem being moderated as forgetfulness; stage 2: individuals need some care because there is loss of functionality, forgetfulness, memory loss of recent functions, with this they cannot perform their daily activities alone. Partial loss of cognitive ability, so patients have a dependence on a person for their care. In addition, most people due to lack of knowledge may think that symptoms are just a simple loss of memory, but it develops other symptoms such as mood swings, difficulty performing everyday tasks and lack of real-life perspectives. The aim of this study is to report the diversity of Alzheimer's disease, with methods such as physiotherapy, nutrition and its treatment perspective. Knowing that AD is a degenerative disease, it is important to show the action of nutrition, physiotherapy and the respective treatments, in order to assist in the stagnation of the disease.

Keywords: Diabetes, Alzheimer's, dementia, neurodegenerative, addiction

1. Introduction

Alzheimer's disease is a disease where a cell change occurs. The pathfinder and the first to develop the study on the disease was the German psychiatrist, Alois Alzheimer. She had her first contact with the disease in 1906 while caring for her patient who had recent memory failure (SILVA; KINGS; CORREIA, 2021).

The "AD" can be classified to a greater or lesser extent.

Where there is a patient who is in the beginning and does not present difficulty of memory and physical capacity and there are cases where the carrier of "AD" is in a very large room of delusions, where he ends up taking control of himself (APARECIDA; SAINTS; ALEXANDRA, 2017).

The 2011 estimates show that 24 million have AD worldwide, and it is predicted that by 2030, this number will increase to about 72 million. The most presented references by patients with Alzheimer's disease are the presence of diffuse

cortical degeneration, neurovascular deterioration, deriving adversities in the neurotransmission system (DE FALCO *et al.*, 2016).

There are several theories for AD, one of which is the theory of retro genesis (RT), which presents cognitive loss, which occurs due to the reverse of the neuropsychomotor acquisition order, that is, the initial phases and complex abilities are lost (FERNANDA; MARTINS; FERREIRA, 2021).

The aim of the study is to report the diversity of Alzheimer's disease, with methods such as physiotherapy, nutrition, the relationship with diabetes and the perspective of treatment. Knowing that AD is a degenerative disease, it is important to show the action of nutrition, physiotherapy and the respective treatments, in order to assist in the stagnation of the disease.

2. Methodology

The search for articles was carried out within the google academic platforms, using key words such as: Alzheimer's; Alzheimer's disease; Diversity of Alzheimer's disease, and filtered language-based documents, where any of these with language other than the Portuguese. A chronology of publication dates was published for the selected articles, dating from 2016 to 2021. In addition to this platform, the SciELO database was also used, where it was searched for articles using the same phrase words. In this last platform, it is necessary to use inclusion and exclusion criteria for filtering articles and materials to be processed, therefore, within this filter, the articles that had been published only in the Brazilian Portuguese language were used, in order to finally select those that met the research theme and the exclusion criteria already established.

With the research options already provided by the database, the selection stage of the articles used in the study started from the observation of steps such as: abstract, objectives and methodology addressed, so that with such selection and pertinent information the construction of the study presented here, the information was organized, tabulated and discussed based on the references defined, so that the results and discussions stage could finally be built.

3. Results and Discussion

Physical therapy intervention can contribute at any stage of Alzheimer's disease by acting both in the maintenance and improvement of the individual's functional performance. Epidemiological factors, pathophysiology, etiology, diagnostic criteria and clinical picture were initially considered for a better understanding of the pathotherapeutic intervention in individuals with the disease (MARIA *et al.*, 2016).

The incidence of falls is common in patients affected by Alzheimer's disease. Identifying risk factors and developing fall prevention strategies can result in improved quality of life in these patients. Although some studies present data proving the benefit of physiotherapy in reducing the risk of falls, it was not possible to reach an effective conclusion about the preventive effect of falls through the application of this therapeutic modality (MARIA, *et al.*, 2016)

Nutrition helps in feeding and supplying the nutrients that the patient's body needs such as carbohydrates, proteins and vitamins that are fundamental to patients with Alzheimer's disease. Given this context with the objective of seeking treatment for this degenerative disease, the most diverse diagnoses are being reported according to the symptoms of AD disease with the help of physiotherapy and nutrition professionals, however, this disease presents the most different degrees of stages. There is still no cure for this disease, however, medicine already has methods that generate a longer life period and with better quality. These can be divided into two: drug treatments and treatments to encourage the practice of activities with cognitive stimulation (MARIA *et al.*, 2020).

Drug treatments focus on the symptoms caused by AD there are 4 medicines used to fight the disease in Brazil, such as donepezilo, galantamine, rivastigmine and memantine. The treatments offered by medicine are two drugs and incentives as a stimulant activity practice. Drug treatments are done through medications that alleviating the patient's symptoms by relies on the same, while the incentive of cognitive stimulant regulates treatment through physical exercises allowing an improvement in their language and memory. According to what has been reported, we can observe that this disease, despite not having a cure, it enables friends, families and especially patients who have AD to obtain a more effective and happy quality of life (APARECIDA; SAINTS; ALEXANDRA, 2017).

Alzheimer's disease affects the entire patient's family, and it is in fact necessary to pay special attention to this group of people, due to the adverse changes they suffer in various and important areas of their lives, thus it is necessary to take care, care, identifying and recognizing the situations for to be able to intervene to allow greater well-being in both care and disease (LUCAS; Freitas, D.A., MONTEIRO, 2013). In demand that the family and the handlers know the setbacks of physical and mental and collectivism guidelines that are able , however depreciate to the space of elevation and the socialization of general criteria and cooperation of prudence in convenience (ILHA *et al.*, 2016).

According to De Falco *et al.* (2016) the human brain is, from a metabolic point of view, one of the most active organs in our body, processing a large amount of carbohydrates to produce cellular energy in the form of adenosine triphosphate (ATP). Despite its requirements, the brain does not have a great flexibility in terms of substrates for the production of this energy, based almost exclusively on the use of glucose. This dependence puts the organ at risk if the substrate supply is scarce or interrupted, or if the ability to metabolize glucose becomes flawed: the brain becomes unable to protect the synapses. In this situation, cells may not function properly, resulting in cognitive changes. From this basic principle, a possible link between diabetes and AD becomes evident. The researchers found that men with low insulin production at age 50 were 150% more likely to develop AD than those with

normal insulin production. This association was even greater in patients with Apolipoprotein E4 (ApoE4) deficiency, which seems to indicate a strong genetic predisposition to AD, thus making diabetes a possible independent risk factor for this disease.

Menezes *et al.* (2020), says that due to peripheral insulin resistance, diabetic patients show a reduction in the activity of this hormone, causing problems in the translocation of glucose-specific carrier protein (GLUT glucose transporter). This deficiency in translocation leads to the formation and release of end products of the advanced glycation end-products (AGEs), in addition to cytokines, pro-inflammatory growth factors, and reactive oxygen species (EROS) in endothelial cells. Thus, with the availability of these substances, vascular injury becomes more conducive to occurring in diabetic patients, and thus making them more susceptible to Alzheimer's. Insulin in the Central Nervous System (CNS) influences glucose concentration regulation, as well as cognitive functions (learning and memory) when present in the hippocampus and cerebral cortex. Therefore, in diabetic patients, where insulin availability is low, cognitive problems may occur, which may predispose to the development of "AD".

According to Menezes *et al.* (2020), there is another hypothesis of the influence of insulin on the appearance of cognition problems, related to the glucose metabolism regulatory enzyme called glycogen-sythetasequinase 3 (GSK3). The Isoform GSK3β is the most expressed in the CNS, where it is regulated by the action of insulin, which is able to inactivate it, which favors the process of phosphorylation of the TAU protein and the amyloidogenic cleavage of THE, events that will originate, respectively, the neuro fibrillar tangles and the senile plaques.

4. Conclusions

The diversity of the disease was reported, with methods such as physiotherapy, nutrition, the relationship with diabetes and its treatment perspective. There is still no cure for this disease, however, medicine already has methods that generate a longer period of life and with better quality. Nutrition helps people with Alzheimer's disease because they need healthy foods such as fruits, vegetables and legumes in general, in addition to the need for vitamin D and a balanced diet. While, physiotherapy aims with these patients to bring functionality and improve quality of life. In diabetic patients there is a higher risk of Having Alzheimer's because insulin flexibility is lower, and may cause cognitive problems, which may facilitate the development of the disease. There is still no cure for this disease, however, medicine already has methods that generate a longer period of life and with better quality.

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