The importance of early detection of Alzheimer's to improve the patient's quality of life

https://doi.org/10.56238/sevened2024.001-004

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ABSTRACT

Alzheimer's disease is a progressive neurodegenerative disorder marked by behavioral and cognitive impairment that eventually interferes with daily functional activities. The disorder has no cure, and its rate of progression is variable. In this context, the early diagnosis of the disease is a valuable element so that the individual and their caregivers have time to make choices and plan, to allow access to treatments that can help manage the symptoms. Thus, the objective of this study is to present the importance of early diagnosis of Alzheimer's disease for a better quality of life for the patient. And for this, an integrative literature review was carried out, with inclusion criteria that included the original, free articles, available in full, in Portuguese, published in the last 5 years, which had a direct connotation with the theme and met the objective and perspectives of the study. Abstracts, duplicate copies, case studies, and those that did not meet the objective of the article were excluded. Alzheimer's disease represents an immense burden for people with the condition, for their families and caregivers, but also for the healthcare system and society at large, early diagnosis allows everyone involved to have time to adapt, while the patient can still actively participate contributing to the quality of life. We conclude that early detection, even though there is no cure, can be minimized with multidisciplinary follow-up and medication, contributing to well-being and quality of life, encouraging all those involved not to give up on the journey.

Keywords: Early detection, Alzheimer's diseases, Alzheimer's disease.

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INTRODUCTION

Alzheimer's disease (AD), a neurodegenerative disorder, is the most common cause of dementia worldwide. It is a condition that results from the accumulation and deposition of brain β-amyloid (Aβ) and is the most frequent type of amyloidosis in humans (CAMPOS et al., 2020). Symptoms include emotional fluctuation, sleep disturbances, behavior changes, and cognitive decline. In the advanced stages, it can cause severe symptoms such as malnutrition, multi-organ failure, and brain death. There is currently no cure for the disease, but treatments are available to slow its progression (GAION, 2020).

It is the most prevalent cause of dementia, accounting for 60-80% of all dementias. Prevalence is closely linked to age, >1% of people between 60 and 64 years of age have the disease, increasing to 20 to 40% in the age group over 85-90 years. According to the World Health Organization, there are 35.6 million people with this disease in the world, and this number is expected to double by the year 2030 and triple by 2050. In Brazil, it is estimated that there are about 1.2 million people with AD (ROSADO, 2021).

Dementia is the loss of cognitive functioning (thinking, remembering, and reasoning) and behavioral skills to such an extent that it interferes with a person's life and daily activities. The severity of dementia ranges from the mildest stage, when it is just beginning to affect cognitive functioning, to the most severe stage, when the person must be completely dependent on others for help with basic activities of daily living (CAMPOS et al., 2020). The causes of dementia can vary depending on the types of brain changes that may be occurring. Other forms of dementia include Lewy body dementia, frontotemporal disorders, and vascular dementia. It is common for people to have mixed dementia, a combination of two or more types of dementia (MATTOS; KOVÁCS, 2020).

Currently, diagnosis depends mainly on signs and symptoms of mental decline. Routine laboratory tests do not show any specific abnormalities. CT scan of the brain reveals brain atrophy and enlarged third ventricles, a nonspecific finding as these abnormalities are also present in other diseases and in people with normal age-related changes (HANE et al., 2017).

This condition has no cure, so treatment is focused on maintaining quality of life, maximizing function, improving cognition, promoting a safe environment, and self-engagement. Maximizing dementia functioning involves monitoring the patient's health and cognition, educating the patient and their family, initiating pharmacological and non-pharmacological treatments (GAO et al., 2018; HANE et al., 2017).

Alzheimer's dementia represents a significant burden for people living with this disease, family members and caregivers, the health system, and society at large. With the global increase in longevity, the prevalence of Alzheimer's disease is increasing and there is an urgent need for approaches to prevent or delay the onset of the disease and subsequent dementia. In view of these burdens and the possibility of ensuring a course of the disease with fewer impacts for all involved, early detection can make it possible to minimize them and even contribute to quality of life

Based on this, the objective of this study is to understand the importance of early detection of Alzheimer's for a better quality of life for the patient.

METHODS

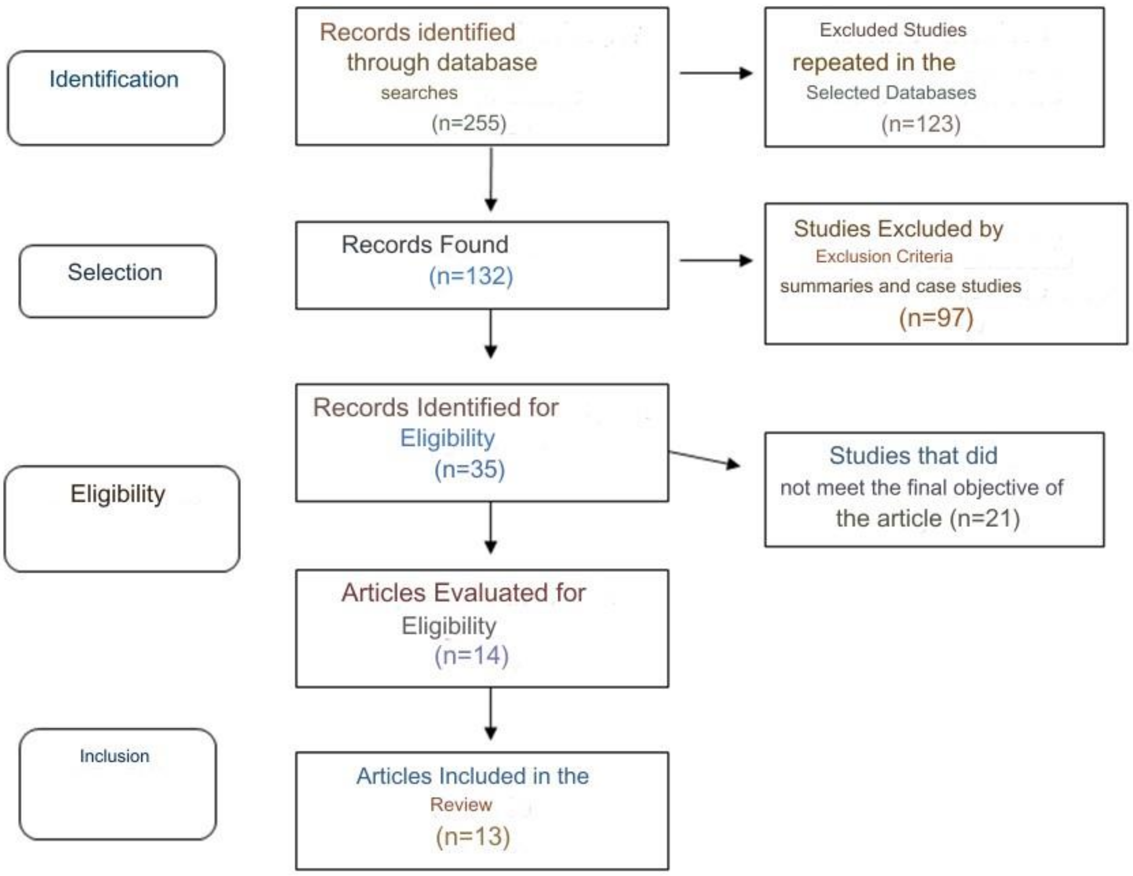
The present study consists of an integrative literature review consisting of six stages proposed by Mendes, Silveira and Galvão (2008). Thus, the construction of this integrative review follows the following steps: identification of the theme and selection of the hypothesis or research question; establishment of criteria for inclusion and exclusion of studies/sampling or literature search; definition of the information to be extracted from the selected studies/categorization of the studies; evaluation of included studies; interpretation of results; and presentation of the review/synthesis of knowledge (ERCOLE et al., 2014, p. 09).

The selection of participating studies was carried out in the following databases, delimiting the publication period of the last 5 years (2018-2022): Latin American and Caribbean Health Sciences (LILACS), PubMed, and the Scientific Electronic Library Online (SCIELO) database.

Inclusion criteria were defined as original, free articles, available in full, in Portuguese, published in the last 5 years, which had a direct connotation with the theme and met the objective and perspectives of the study. Abstracts, duplicate copies, case studies, and those that did not meet the objective of the article were excluded.

To conduct this study, a consultation was carried out with the Health Science Descriptors (DeCS), which made it possible to select the following descriptors: "Early Detection"; "Alzheimer's Diseases" and "Alzheimer's Disease", For the effective collection of the articles, the descriptors were counted using the Boolean operator *"and*" as a search strategy in order to maximize the capture of studies that portrayed the perspectives proposed by the study. By combining the descriptors, 255 materials were identified, ~~2 in~~ Scielo, 220 in Lilacs and 33 in Pubmed. In the first stage, 123 duplicate copies were excluded. In the second stage, verifying the material, 97 abstracts and case studies were excluded. In the third stage, after a full reading, 21 materials were excluded because they did not meet the final objective of the article, and finally, 13 studies were selected for its preparation.

Flowchart 1; Representation of the Search for Studies.



RESULTS

A selective and analytical reading was carried out based on the selected materials, which were extracted and examined for discussion. To this end, the studies used in this review were published between 2018 and 2022, and in order to assist in the process of discussing the researched content, these articles were organized and classified in a categorization table (Table 1). To have a better visualization and provide an opportunity for a more critical analysis. The studies were organized according to the author, year of publication, title of the document, and their contributions to the integrative review proposed in this work.

Table 1 – Summary of the objectives achieved by the articles included in the integrative review.

Author / Year of Publication	Article Title	Contributions to the Integrative Review
BEZERRA et al., 2023	Relationship Between Neuroinflammation, Biomarkers, and Physical Activity in Alzheimer's Disease Prevention	The regular practice of physical exercises in a systematic manner seems to contribute to the protection of inflammatory mediators, preventing the advancement of Alzheimer's disease, and may provide improvement in the preservation of cognitive functions in AD patients, neuropsychiatric symptoms, functional capacity, cardiorespiratory capacity, in addition to an increase in longevity, especially among those individuals whose disease was detected early.
MAYORAL et al., 2022	Knowledge and attitudes about dementia of general practitioners in the primary care setting of Botucatu, São Paulo, Brazil	Alzheimer's disease is the leading cause of dementia worldwide. However, despite the alarming prevalence evidence, the condition is still underdiagnosed by professionals, especially in primary care. It is considered that early detection is beneficial for both patients and family members, who should receive guidance on the clinical condition, as well as act on possible complications related to the characteristic clinical picture, covering social, family and medical aspects, thus providing a possibility of planning for the future.
HAMPEL et al., 2022	Biological markers for early detection and treatment of Alzheimer's disease	The introduction of biological markers in the clinical treatment of Alzheimer's disease (AD) will not only improve diagnosis related to the early detection of neuropathology with underlying molecular mechanisms, but will also provide tools for the evaluation of the objective benefits of treatment. These neurobiological measures appear to be closely related to pathophysiological, neuropathological, and clinical data, such as tau hyperphosphorylation, abeta metabolism, lipid peroxidation, pattern and rate of atrophy, loss of neuronal integrity, and functional and cognitive decline, as well as risk of future decline.
REIS et al., 2022	Diagnosis and treatment of Alzheimer's disease	AD is a chronic and neurologically degenerative pathology that triggers the gradual loss of autonomy and, consequently, independence of the individual. This condition generates a significant economic and social impact for all involved, especially society, which makes early detection a positive possibility. Pharmacological therapy is used to mitigate the manifestations and delay the aggravations generated by the pathology.
DAMASIO et al., 2021	Alzheimer's disease: an update on the diagnostic management	The advances acquired in recent years in relation to the diagnosis of AD are very promising, especially with innovations presented through biomarker tests and analysis of neuroimaging exams with the aid of computational intelligence. There is also room for further research and the feasibility of other diagnostic methodologies, such as postural control exams and gait tests.
GUZMAN-MARTINEZ et al., 2021	New frontiers in the prevention, diagnosis and treatment of Alzheimer's disease	The main risk of AD is aging; A normal biological process associated with an ongoing dynamic that involves a gradual loss of people's physical capacities, but with a solid outlook and experience of life. Studies suggest that AD is a break from normal aging, with alterations in the powerful functional capacities of neurons, as well as neuronal protection mechanisms. Prevention as well as innovative screening programs for the early detection of the

		disease using reliable biomarkers are becoming essential to control the disease.
MATTOS; KOVACS, 2020.	Alzheimer's Disease: The Unique Experience of Family Caregivers	According to the research, the needs of caregivers range from the diagnosis in the early stages of the pathology to the conception of a space for welcoming and listening in the face of the gradual losses experienced during the care process. Thus, it is urgent to invest in the training of professionals in the most different areas that are involved in the care process to promote the quality of life and well-being of caregivers, as well as in the need for health teams to experiment in a singular way with the model of care in the face of dementia.
MIRANDA et al., 2020	Applicability of playful activities as a parameter in the recognition of early Alzheimer's in primary health care	This study aimed to report the experience lived through playful activities in screening for early identification of Alzheimer's Disease (AD) in the elderly. It found that the use of remodeled technology allows the visualization of delayed reflex, cognitive disorder and perception of the alteration of sensory senses. Demonstrating that it is essential to carry out educational actions aimed at screening and detecting previous diagnosis, and also to review the insertion of adaptable methodologies to work on flexibility in the demand for primary health care.
CAMPOS et al., 2020	Family reorganization after diagnosis of Alzheimer's disease.	The presence of the caregiver in the care in daily practices is fundamental for the well-being of the elderly with AD, especially when the disease is identified early, because to promote their autonomy in activities of daily living, their support and supervision is facilitated, they are only necessary for collaboration, ensuring their quality of life. The proposal of welcoming groups in the health units, the elaboration of booklets with specific guidance on AD and the offer of follow-up by the mental health team of the services are actions that can promote greater recovery and maintenance of the health of family caregivers.
BHATTI et al., 2020	Lifestyle Modifications and Nutritional Interventions in Aging-Associated Cognitive Decline and Alzheimer's Disease	Due to the limited options for early diagnosis and determination of the exact pathophysiology of AD, finding effective therapeutic strategies has become a major challenge. Several possible risk factors associated with the pathology have been identified; however, their papers are still inconclusive. Recent clinical trials of drugs targeting Aβ and tau have failed to find a cure for AD pathology. Therefore, effective preventive strategies should be followed to reduce the exponential increase in the prevalence of cognitive decline and dementia, especially in the face of early detection.
PAIS et al., 2020	Early diagnosis and treatment of Alzheimer's disease: new definitions and challenges	A new understanding of the neuropathological changes of AD is emerging. The biomarker-based classification system proposed in 2018 is evidence of a broader concept of the disease pathological process, and the impact of this new insight on biomarker and drug development studies is already evident. However, clinical trials still face many challenges. Ultimately, the main goal of detecting AD in its preclinical stages is to facilitate early therapeutic intervention, which is the underlying premise of most ongoing efforts to find new therapies.

SABBAGH et al 2020	Early Detection of Mild Cognitive Impairment in Primary Care	The authors acknowledge that the increasing global incidence of AD calls for innovation that helps ease the burden on health systems when coupled with potentially short-term approval of disease-modifying therapies, as well as early identification of the pathology. In addition, it is argued that adequate infrastructure, equipment, and resources must be urgently integrated into the primary care setting to optimize the patient journey and accommodate widespread cognitive assessment.
UGRUMOV et al 2020	Development of Early Parkinson's Disease Diagnosis: Illusion or Reality?	The fight against neurodegenerative diseases, Alzheimer's disease and Parkinson's disease (PD), is a challenge of the 21st century. The low efficacy in the treatment of patients is due to the late diagnosis and initiation of therapy, after degeneration of most specific neurons and depletion of neuroplasticity. It is believed that the development of early diagnosis and preventive treatment will delay the onset of specific symptoms.

Source: Prepared by the authors based on the full reading of the selected articles, 2023.

DISCUSSION

Alzheimer's disease (AD) is a progressive neurodegenerative disorder marked by behavioral and cognitive impairment that eventually interferes with daily functional activities. The disorder has no cure, and its rate of progression is variable. In addition, diagnosis in the initial phase is difficult and there are no specific laboratory or imaging tests for confirmation. The drugs available to treat the disease only work for the mild disease, but they also have numerous side effects that are not well tolerated (MIRANDA et al., 2020).

This is a systemic condition and one that causes significant impacts not only on the individual's life, but also on the family and everyone involved. According to Matos and Kovacs (2020), these individuals often wander, fall, have significant behavioral problems, and memory loss. Most patients end up in an institution because they become unmanageable at home. Due to the nature of the disease, an interprofessional approach to the disorder has been recommended. Many guidelines and recommendations have been made on how to approach, monitor, and treat Alzheimer's patients. No measure can prevent or stop the disease. In view of this, it is estimated that early detections play a key role in ensuring that people with Alzheimer's disease can remain safe and have a dignified quality of life.

For Bezerra et al (2023), Damasio et al (2021) and Pais et al (2021), although the development of pharmacological treatments to slow or stop the progression of cognitive deficits is an ongoing process that is likely to take years from their realization, effective evidence-based non-pharmacological interventions are now available to improve the quality of life of people with Alzheimer's and their care partners. The vast majority of interventions are low-cost, with no physical side effects, and can be performed by lay facilitators, for professionals and/or trained professionals.

Dementia is a syndrome that can be caused by several diseases, the most prevalent being Alzheimer's disease. It is difficult to determine an accurate estimate of the prevalence of Alzheimer's dementia, as it is often difficult to pinpoint the precise subtype of dementia. However, it is generally accepted that Alzheimer's disease accounts for about two-thirds of all dementia diagnoses (HAMPEL et al., 2022).

According to Sabbagh et al (2020), with the realization that urgent measures must be taken to reduce the burden of Alzheimer's disease, a disease with increasing costs and very limited treatment options, there has been a shift in focus to identify individuals much earlier in the disease process. Not all individuals with mild cognitive impairment will develop dementia, and although there is no current treatment to prevent or cure the disease, there is an urgent need to improve diagnosis rates so that those most at risk can be identified early and measures put in place to reduce or prevent further progression.

It is known that the progression of Alzheimer's disease can be divided into three general phases: preclinical, mild cognitive impairment, and dementia, but it can be described more accurately according to a seven-stage model. The progression of the disease can be different for each individual, but most people live between 4 and 8 years after diagnosis (MIRANDA et al., 2020).

Preclinical Alzheimer's disease describes a person who has no cognitive symptoms but shows signs of pathology on brain imaging or blood/cerebrospinal fluid (CSF) biomarkers. It is generally accepted that biomarker abnormalities, such as low CSF β-amyloid levels and brain amyloid deposits, precede elevated CSF tau brain injury (PAIS et al., 2020).

For Mayoral et al (2022), although there is currently a debate among experts about whether mild cognitive impairment is really a diagnosis. What is recognized is that people with this deficit have a risk state that may, in the future, evolve into dementia. Therefore, patients should be informed that there are variations, which may progress in an aggravating manner, this will require further evaluation and review.

It is estimated to increase the risk of developing dementia caused by Alzheimer's disease or other neurological conditions in about 30% of individuals; another 30% will remain with mild cognitive impairment and 30% with symptoms of mild cognitive impairment will improve (MAYORAL et al., 2022).

According to Pais et al (2020) a number of medical conditions and lifestyle factors have been associated with an increased risk of mild cognitive impairment as well as Alzheimer's dementia, including: increasing age, diabetes, smoking, high blood pressure, high cholesterol, obesity, depression, lack of physical exercise, a low level of education, infrequent participation in mental or social stimulation activities, and the presence of the APO-E4 gene variant. Progression is more likely in those with more than one of these risk factors.

The existence of potentially modifiable risk factors means that prevention of cognitive impairment and dementia may be possible through a public health approach. Individuals with the risk factors are often seen in primary care, providing an opportunity for health professionals to ask about health concerns, including memory problems. When performed as part of a routine medical visit, there are ample opportunities to identify patients with potential mild cognitive impairment in a cost-effective manner, without generating undue anxiety and without the stigma associated with attending a specialized clinic (MAYORAL et al., 2022).

According to Bhatti et al (2020), Alzheimer's disease is one of the most feared diseases of old age. A diagnosis is often experienced with shock and feelings of disbelief, anger, fear, hopelessness, despair, and sadness. Fear of the stigma surrounding Alzheimer's disease, particularly as a result of misconceptions about the disease, can prevent people from seeking medical treatment, receiving an early diagnosis or any diagnosis at all, living the best possible quality of life while they can, making plans for their future, and benefiting from available treatments and support systems.

In addition, patients may find repeated evaluations humiliating. From an ethical perspective, an early diagnosis may affect issues related to privacy and confidentiality, for example in relation to employment, the right to hold a driving licence, insurance premiums and financial management. It is, therefore, essential that individuals are not penalized for receiving an early diagnosis (BHATTI et al., 2020)

Similarly, Campos et al (2020) refer to the importance of early diagnosis shows that a diagnosis is often received with severe shock, with feelings of disbelief, anger, loss, and grief. However, a diagnosis is often considered by people with dementia and family members to be a "positive event", especially when the initial shock wears off. Fundamentally, the response to a diagnosis depends on how well a person with dementia is informed about it; and the level of support that is available to her and her families after diagnosis.

It is therefore important that the person with dementia and their family receive the diagnosis of dementia in a positive way, with time available to answer any questions and for support and reassurance to be provided. This is more likely to make the individual feel more in control and empowered to make decisions (CAMPOS et al., 2020).

According to Reis et al (2022) and Ugrumov et al (2020), the positive benefits of receiving an early diagnosis of Alzheimer's disease for the patient are that it provides an explanation for the symptoms and signs they are experiencing and puts an end to their suspicions. Early diagnosis and subsequent access to the right services and support can help people take control of their condition, live independently in their own home for longer, and maintain a good quality of life for themselves, their family, and caregivers.

A good quality of life in the early stages of the disease can be maintained for several years. Because patients can plan ahead while they still have the capacity and thus participate in their own treatment options, financial issues, and support/care future and make their wishes known to family members (GUZMAN-MARTINEZ et al., 2021).

It is only through receiving a diagnosis that patients can access available treatments that can improve their cognition and improve their quality of life.

According to research by Ugrumov et al (2020), several studies suggest that most people support specific screening of people at risk of dementia and dementia disclosure. In a study conducted in Canada of community-dwelling older individuals without cognitive impairment, virtually all (98%) stated that they would like to be informed of a diagnosis, whether or not medication was available to treat it. A questionnaire survey of 2,678 randomly selected adults in the U.S. and four European countries, which asked whether individuals would undergo a hypothetical early medical examination for Alzheimer's disease, found that potential demand was high, with 67% saying they would like to know if they would develop the disease.

Most patients with Alzheimer's dementia are cared for by their spouse or another family member. Given the long duration of Alzheimer's disease, the pressure on caregivers can be prolonged. A report by the Alzheimer's Association indicates that in 2017, 16 million Americans provided an estimated 18.4 billion hours of unpaid care in the form of physical, emotional, and financial support – a contribution to the nation valued at $232.1 billion (BEZERRA et al., 2023; SABBAGH et al 2020).

For Mayoral et al (2022), early diagnosis allows caregivers time to adapt to the changes in function, mood, and personality that can occur with Alzheimer's dementia and their transition to the caregiver role.

It has been shown that caregivers who are better able to adapt feel more competent to care and experience fewer psychological problems such as anxiety and depression. Several enhanced support services for caregivers have demonstrated efficacy in delaying the institutionalization of the dementia patient, including in-clinic support programs targeted at this group (MAYORAL et al., 2022).

For Reis et al (2022) and Sabbagh et al (2020), the high economic impact of Alzheimer's dementia is spread across three main sectors: health care, social care and informal care, with most of the costs falling on informal care providers. Social care costs are related to services such as nursing homes, home care, and respite care. Informal care costs are related to the provision of unpaid family care to people living with Alzheimer's dementia. Although a person with dementia is in the community, much of the cost of care is informal, i.e. borne by family and caregivers.

While early diagnosis and intervention may entail higher upfront costs, the economic model suggests that these can be offset by subsequent savings, mainly achieved through a reduction in care needs and institutionalisation (SABBAGH et al 2020; PAIS et al., 2020)..

For Bhatti et al (2020), the recognition and management of the risk of Alzheimer's disease in early adulthood are important to have the greatest impact on preventive decision-making in the face of the identification of the pathology. At this stage, lifestyle changes can be made that will slow or prevent the development of future diseases. Vascular diseases and dementia syndromes have many shared risk factors, including hypertension, type 2 diabetes, smoking, and poor eating and exercise habits.

This has led the World Health Organization to recommend the combined implementation of its recent guidelines on reducing the risk of cognitive decline and dementia with interventions related to the management of risk factors for cardiovascular disease and diabetes. Although general screening is not recommended, individuals with these risk factors may be advised to improve lifestyle choices and control their modifiable risk factors to minimize the risk of future dementia as well as other chronic conditions. In addition, brain health should be protected throughout life by avoiding alcohol and other substance abuse, supporting lifelong learning, and social interaction and stimulation in adulthood (MAYORAL et al., 2022; BHATTI et al., 2020)

Primary care providers, according to Sabbagh et al (2020), in contact with people diagnosed with mild cognitive impairment or another established risk of dementia, should routinely ask questions as part of the patient's normal assessment to identify symptoms of Alzheimer's dementia.

These care providers are ideally positioned to monitor patients at risk for Alzheimer's dementia, as they have access to an individual's medical and family history. However, recognition is not only the responsibility of general practitioners, but also of other professionals who have regular contact with patients and may notice changes in cognitive functioning, including community pharmacists, clinical nurses, district nurses, social and personal care of nursing homes (MAYORAL et al., 2022).

According to Mayoral et al (2022) and Sabbagh et al (2020) primary health care providers will play a key role in recognizing at-risk individuals, recommending lifestyle changes in midlife adulthood that can prevent or delay the disease, and timely diagnosis, assessing older patients for early cognitive signs and initiation of treatment that can significantly delay its progression. Early intervention is the optimal strategy because the patient's level of function is preserved for longer.

In the study by Ugrumov et al (2020), early diagnosis and access to the right services and support can help people take control of their condition, plan for the future, and live well with the condition. In addition, it will help eliminate the possibility that other potentially treatable conditions, with dementia-like symptoms, may be responsible for memory, communication, behavior, and other problems.

There is strong evidence that an early diagnosis helps someone with dementia to continue living independently in their own home for longer. This helps to avoid early or unnecessary admission to a care home or hospital, improving the quality of life for people with dementia and carers, and providing substantial savings in long-term care costs. Drug and non-drug treatment may be more effective the earlier someone is diagnosed (GUZMAN-MARTINEZ et al., 2021; SABBAGH et al., 2020).

FINAL THOUGHTS

Alzheimer's dementia places a huge burden on people with Alzheimer's dementia, their families and carers, but also on the health and social care system and society at large. With the global increase in longevity, the prevalence of Alzheimer's disease is increasing and there is an urgent need for approaches to prevent or delay the onset of the disease and subsequent dementia.

Although no disease-modifying agents capable of reversing the initial pathological changes associated with the disease have yet come to market, an early diagnosis in the course of the disease allows everyone involved time to adapt, while the patient can still actively participate, and provides access to counselling, financial support, and non-pharmacological and pharmacological treatments. Many patients with mild to moderate Alzheimer's dementia can live with the disease for several years with a good quality of life and access to optimal treatments and resources.

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