

Unraveling the Complexity of Geriatric Language Deterioration in Dementia: A Comprehensive Examination and Implications for Care

الكشف عن مدى عقدة تدهور اللّغة لدى كبار السنّ في مرض الخرف: فحص
شامل وآثاره على الرّعاية

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Abstract

Aging, often mitigated through cosmetic interventions, addresses external signs of aging. Yet, the most daunting aspect of growing old lies in the potential decline of cognitive faculties. As individuals age, the loss of short-term memory becomes a prevalent issue, even as long-term recollections remain intact. This process can culminate in dementia, a condition marked by a decline in memory and cognitive abilities, impeding daily functioning. This literature review aims to explore the intricate relationship between

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aging and dementia. Its primary goal is to enhance the quality of life and care for individuals grappling with this condition. The review meticulously defines dementia, delineates its progressive stages, delves into its causes, and elucidates its impact on language, patients, and their families. Moreover, it underscores the pivotal role of familial and clinical interventions in addressing this challenge. Highlighting preventive measures, the review specifically defines dementia, discusses its stages, spots the light on its causes, reviews its effects on language, patient and the family, emphasizes the importance of familial and clinical interventions, stresses some preventive measures, and ends with some useful recommendations that may fend off the early attack of dementia.

Keywords:

Dementia – familial intervention – clinical intervention – preventive measures

ملخص

تعالج الشيخوخة، التي يتم تخفيفها غالباً من خلال التدخلات التجميلية، العلامات الخارجية للشيخوخة. ومع ذلك، فإن الجانب الأكثر صعوبة في التقدّم في السن يكمن في التدهور المحتمل للقدرات المعرفية. مع تقدّم الأفراد في العمر، يصبح فقدان الذاكرة القصيرة المدى مشكلة سائدة، حتى مع بقاء الذكريات الطويلة المدى سليمة. ويمكن أن تؤدي هذه العملية إلى الإصابة بالخرف، وهي حالة تتميز بانخفاض في الذاكرة والقدرات المعرفية، مما يعيق الأداء اليومي. تهدف مراجعة الأدبيات هذه إلى استكشاف العلاقة المعقدة بين الشيخوخة والخرف. هدفها الأساسي هو تحسين نوعية الحياة والرعاية للأفراد الذين يعانون من هذه الحالة. تحدّد هذه الورقة البحثية بدقة الخرف، وتحدّد مراحلها

التقدمية، وتعمق في أسبابه، وتوضح تأثيره على اللغة والمرضى وعائلاتهم. علاوة على ذلك، فهي تؤكد الدور المحوري للتدخلات العائلية والسريرية في مواجهة هذا التحدي. ومن خلال تسليط الضوء على التدابير الوقائية، تحدد هذه الورقة البحثية الخرف على وجه التحديد، وتناقش مراحلها، وتسلط الضوء على أسبابه، وتستعرض آثاره على اللغة والمريض والأسرة، وتؤكد أهمية التدخلات العائلية، بعض التدابير الوقائية، والسريرية، وتنتهي ببعضها. وتقدم توصيات مفيدة قد تقي من الهجوم المبكر للخرف.


الكلمات الدالة:

الخرف - التدخل العائلي - التدخل السريري - الإجراءات الوقائية

Introduction

Dementia is predicted to affect an astounding 35.6 million individuals worldwide, and as the population ages, it is predicted to double every 20 years (Moyle, Murfield, Venturto, Griffiths, Grimbeek, McAllister, & Marshall, 2014). According to Annear, Toye, McInerney, Eccleston, Tranter, Elliot, and Robinson (2015) as well as Macoir, Laforce, Monetta, and Wilson (2014) dementia is a terminal neuro-degenerative syndrome marked by changes to the brain's structure and function; in other words, the hallmark of this condition is characterized by cell death due to neuronal damage of the brain.

Dementia presents a pressing global concern, with an estimated 35.6 million individuals affected worldwide, a figure projected to double every 20 years as our population continues to age (Moyle et al., 2014). This neuro-degenerative syndrome, as described by Annear et al. (2015) and Macoir et al. (2014), is a terminal condition characterized by structural and functional alterations in the brain. The underlying pathology involves neuronal damage



and cell death, leading to profound changes in cognitive abilities and daily functioning.

This paper delves into various facets of dementia, providing a comprehensive understanding of its stages, etiology, biological underpinnings, linguistic impacts, and the pivotal roles of both family members and healthcare professionals in managing this complex condition. Understanding the stages of dementia elucidates its progression from initial symptoms to advanced cognitive decline, offering insights into the diverse challenges individuals face throughout the course of the illness.

Exploring the causes and biological consequences of dementia delves into the intricate mechanisms that lead to neuronal damage and brain structural changes, shedding light on the multifaceted nature of this condition. Additionally, examining how dementia affects language illuminates the communication difficulties individuals encounter, emphasizing the importance of tailored interventions to support language function. Moreover, this paper highlights the crucial roles of family members in providing assistance and support to individuals with dementia. It further outlines the contributions of clinicians and healthcare professionals in diagnosis, management, and interventions aimed at enhancing the quality of life for those affected. Finally, the paper emphasizes preventive strategies and measures to mitigate the complexities and adverse effects of dementia. By offering a comprehensive overview of these critical aspects, this paper aims to equip readers with a deeper understanding of dementia, empowering

them with insights into effective strategies for management, care, and potentially delaying or minimizing its impact. Specifically, this paper addresses the stages of dementia, its causes, its biological consequences, how dementia affects language, what family members may do to assist a patient with dementia, what professionals or clinicians can do, and how to prevent it or mitigate its complexities and unpleasant effects.

Definition

According to G. M. McKhann, D. S. Knopman, H. Chertkow et al. (2011), dementia is not a disease; it is rather an impairment brought on by Alzheimer's disease. Its hallmark is marked by a reduction in one's capacity for independent daily functioning owing to memory, cognitive, and behavior problems. Dementia causes mild cognitive impairment, which is characterized by subtle changes in memory and thought that can be detected and measured with mental status exams but are not severe enough to interfere with daily activities. According to key facts published on May 15, 2023, Dementia is a sickness or syndrome that can be brought on by a number of illnesses that over time damage the brain and kill nerve cells, impairing cognitive function (i.e., the capacity to think) in ways that go above and beyond what is generally expected as a result of biological aging. While consciousness is unaffected, changes in mood, emotional control, behavior, or motivation frequently precede and accompany the impairment in cognitive function.



Stages of Dementia.


The World Health Organization (WHO) identifies three stages of dementia: early, middle, and late. Basically, in the early stage the person may feel oblivious or forgetful and lost. In the middle stage, the symptoms sharpen and become more remarkable as in communication problems, needing assistance very often even in personal care, forgetting common names and recent events. Finally, in the late stage, the symptoms become so noticeable and severe and the person needs full-time assistance as exhibiting difficulty in recognizing time, close people, as well as experiencing behavioral problems such as aggression. The sections below will look at each of these in more detail. (Amin, Sylpha & MacGill, Markus, 2023). Most models showing the stages of dementia divide them into three categories as aforementioned: mild, moderate, and severe. However, this paper opted for the seven-stage model since it elaborates on the condition more thoroughly.

Symptoms of Dementia

According to Vann (2010), ‘No Impairment’ is the description that sums up the first stage, during which no overt signs of dementia are present and people can carry on with their daily activities normally. In the second stage, known as “Very Mild,” dementia symptoms are barely noticeable and mirror those associated with normal aging such as frailty and susceptibility to diseases. When a person reaches the third stage, “Mild,” they can still carry on with daily activities including using the restroom, brushing their teeth, etc. But some memory loss, repetition, forgetfulness, loss

of focus, and modest problems with money management start to show up. As dementia progresses to the fourth stage, namely “Moderate,” the symptoms worsen. Incontinence, worsening memory loss, trouble forming phrases and sentences, and social isolation are possible side effects. Patients reach a point in the fifth stage, “Moderately Severe,” where they are unable to carry out daily duties without assistance. Loss of direction and even forgetting one’s own home address are warning signs. Additionally, they are unable to recognize the seasons or dress accordingly based on the occasion. When a patient reaches the sixth stage, “Severe,” caregiver involvement is necessary. Disability signs including trouble remembering names, trouble sleeping or excessive insomnia, and personality changes are all present. The final stage, “Very Severe,” is characterized by the patient’s loss of speech, need for assistance with eating, loss of bladder control, and incapacity with respect to actions like swallowing, grinning, and walking.

Expanding on the stages and symptoms of dementia, several renowned medical sources provide in-depth insights into the progression of the condition. The Alzheimer’s Association outlines the stages of dementia, emphasizing that in the early stages, individuals may experience subtle memory issues and mild cognitive impairment. As the condition advances, symptoms intensify, affecting various cognitive functions such as language, judgment, and reasoning. The National Institute on Aging (2021) further elaborates on these stages, highlighting that in moderate



stages, individuals may struggle with daily tasks, experience personality changes, and exhibit behavioral symptoms like agitation or aggression.


Moreover, renowned neurologists, such as Dr. Alois Alzheimer, who first described the condition, have contributed significantly to the understanding of dementia. His initial observations of a patient, Auguste Deter, laid the foundation for recognizing dementia's hallmark symptoms, including memory loss and cognitive decline. These historical perspectives, often cited in medical literature and research, underscore the long-standing recognition of dementia's complex symptoms. Referencing these sources not only bolsters the description of dementia symptoms and stages but also emphasizes the evolution of knowledge and understanding in the field, building upon historical observations to present-day comprehensive categorizations and insights into this condition.

To sum it up, a set of diverse symptoms will be encountered by dementia patients, firstly, memory problems such as obliviousness or forgetfulness, difficulty in retaining information as well as retrieving it, misplacing items, difficulty remembering names, and losing the sense of directions especially with very familiar places. Secondly, cognitive abilities will be diminished as in difficulty to recognize and manage time. Therefore, such patients might wake up in the middle of the night, dress up formally and try to convince others that it is time to head to work though they had already retired. Feeling indecisive about ordinary matters and loss of interest in activities that used to be their hobbies are also some

of the symptoms that manifest themselves in dementia patients. Thirdly, communication problems are a source of discomfort to these patients as their speech becomes very often unintelligible, redundant and reflects the speaker's lack of confidence and interest in intermingling with people.

Risk Factors that Cause Dementia

According to the most recent studies, sedentary behavior, obesity, poor nutrition, insufficient education, smoking, alcohol consumption, and genetic markers are dementia's main causes, which are similar to those of cardiovascular illnesses. (Annear et al., 2015). Furthermore, dementia may arise from a brain injury or from aging. Dementia patients are often 65 years old or more and the risk factor multiplies by five when they are over 80. It seems that some ethnic groups are more likely to develop dementia than others. For instance, compared to white Europeans, South Asians and African or African-Caribbean persons appear to be more likely to develop dementia. Differences in food, smoking, exercise, and genes, as well as particular risk factors related to certain populations, such as stroke, diabetes, hypertension, and cardiovascular disease, are suggested to explain this. (Freedom, Alladi, Chertkow, Bialystok, Craik, Phillips, Duggirala, Raju & Bak, 2014). Lastly, dementia may result from the buildup of tangles and amyloid, a protein that resembles starch, in brain neurons. (Solomon, Mangialasche, Richard, Andrieu, Bennett, Breteler, Fratiglioni, Hooshmand, Khachaturian, Schneider, Skoog, & Kivipelto, 2014). It is important to highlight that having more



knowledge or being more educated might make dementias less likely to occur in regions with risky genetic material. Dementia therefore occurs from the interplay of environmental and inherited factors, the majority of which are preventable.

Effects of Dementia


Dementia is seriously impactful; it can be challenging and complex affecting different aspects of a patient's lifestyle as well as close people the patient is contacting. The three sections below illustrate how dementia can have its effect on language, family, caregivers and the patient him/herself respectively.

Effects of dementia on language. Loss of language is one of the three categories of language impairment, which include the nonfluent/agrammatic, semantic, and logopenic varieties, according to Macoir et al. (2014). For instance, the patient struggles with name and sentence repetition because they are logopenic. Language, like other cognitive roles including perception, memory, learning, attention, decision-making, and language skills, is extremely vulnerable to neurodegenerative illnesses. Deficits in language are a result of either deteriorating linguistic operations or come directly from executive function and working memory problems brought on by cognitive aging. Information on the influence of neurodegenerative illnesses on written language is more difficult to find than information on speaking language deficiency. To learn more about customized diagnosis, it is important to perform up-to-date investigations. Echolalia was listed as another side effect of dementia by Wallesch (1990).

It was explained as the use of another person's words and/or utterances repeatedly. It is regularly discovered that echolalia and neurodegenerative disorders are connected. Indeed, dementia's impact on language constitutes a significant aspect of the condition. Macoir et al. (2014) highlighted three categories of language impairment associated with dementia: nonfluent/agrammatic, semantic, and logopenic varieties. Logopenic impairment, for instance, often manifests in difficulties with name and sentence repetition, elucidating the challenges faced by individuals affected by this form of dementia-related language decline. While there's considerable focus on the spoken language deficits in dementia, the influence on written language remains comparatively under explored. However, ongoing research endeavors seek to bridge this gap in understanding. Contemporary investigations aim to delve deeper into the nuances of linguistic impairments associated with neurodegenerative diseases, particularly concerning written language abilities.

Additionally, Wallesch (1990) identified echolalia as a notable side effect of dementia, where individuals repetitively use words or phrases from others. This phenomenon's connection to neurodegenerative disorders underscores the intricate relationship between language and cognitive decline in dementia.

Continued research into various linguistic impairments associated with dementia contributes to a more comprehensive understanding of the condition. It not only sheds light on the diverse manifestations of language deficits but also facilitates



tailored diagnostic approaches and interventions to address these challenges.

Effects of dementia on family and caregivers. According to Moyle, Murfield, Venturto, Griffiths, Grimbeek, McAllister, and Marshall (2014), dementia sufferers have a significant financial and societal cost that shouldn't be dismissed. The patient's behavioral issues have an effect on the patient's family and caregivers. Thus, the financial and social burden of dementia patients can't be taken lightly. It has to be addressed promptly while giving the issue utmost importance. This is one of the key justifications for admitting patients to long-term care.

Additionally, they discussed how caring for a dementia patient changes the level of communication amongst all involved and how flexibility should be used to enhance the care plan. In addition to the aforementioned, Moyle et al. (2014) assert that caregivers must exercise extreme tolerance in these situations because it can be taxing on both sides and result in stress and disengagement.


Effects of dementia on the patient. The effects of dementia on a patient are detrimental and life changing. According to Annear et al. (2015), dementia affects a patient's behavior, memory, and cognitive and physical functioning negatively. Additionally, they depict dementia patients as being able to communicate even in its latter stages.

Absolutely, it extends far beyond the cognitive domain, affecting various facets of their lives. Annear et al. (2015) emphasize the multifaceted nature of this condition, highlighting its detrimental

effects on a patient's behavior, memory, and overall cognitive and physical functioning. This multifaceted impact significantly alters the patient's daily life, leading to challenges in completing routine tasks, maintaining relationships, and engaging in activities they once enjoyed.

As dementia progresses, patients grapple with a gradual loss of independence due to declining cognitive and physical abilities. The deterioration in memory and cognitive functions impairs their capacity to make decisions, solve problems, and even recall familiar faces or places. This decline often results in increased dependence on caregivers for assistance with basic activities of daily living. However, despite these challenges, the ability to communicate remains crucial for individuals with dementia throughout various stages of the condition. Even as cognitive functions decline, many patients retain some level of communication ability. This communication may not always be verbal; non-verbal cues, gestures, and expressions often serve as crucial means for patients to convey their needs, emotions, and maintain connections with others.

Understanding and supporting this continued communication capability are pivotal in enhancing the quality of life for dementia patients. Approaches such as reminiscence therapy, music therapy, and validation techniques capitalize on preserved communication abilities, fostering meaningful interactions and connections, thereby positively impacting the patient's emotional well-being and overall quality of life. Annear et al.'s insights



underscore the importance of recognizing the enduring capacity for communication in individuals with dementia, even as the condition progresses. It emphasizes the need for tailored interventions and compassionate care that prioritize facilitating communication and preserving the patient's dignity and sense of identity amidst the challenges posed by dementia. This will be explored in more detail when family intervention is discussed later.

What Family Members Can Do

Family members have a demandingly tough role to play with dementia patients; yet, their role is indispensable and supportive. Even though it is frequently difficult, those with dementia still have the ability to understand and communicate. Even though dementia impacts many parts with its complicated and demanding symptoms, this happens in varying degrees and forms (verbal and non-verbal) using what is left of their language (Annear et al., 2015). The maintenance of close ties between dementia patients and family members and the facilitation of person-centered care both depend on effective communication where both the sender and the receiver are satisfied; they exchange ideas while making sure that the message reaches clearly.


The duty of a caretaker, whether family or not, goes beyond helping the patient with daily tasks. It is actually a complex role that trespasses the routine tasks. The patient's quality of life is also improved, and any potential transitional phases are supported. The value and worth of the patient must always be upheld in order to protect his or her dignity, both from a moral

and practical perspective for society. On the other hand, there is data to support the idea that any prejudices or assessments of a patient's value or worth may be harmful to the patient's psychological state (Moyle et al., 2014).

The involvement of family members in the care of dementia patients is pivotal and challenging. Maintaining effective communication becomes a cornerstone in this care giving journey. Annear et al. (2015) underscored that despite the multifaceted impact of dementia on various aspects of communication, individuals with dementia can still engage and understand information, albeit in differing degrees and using both verbal and non-verbal forms of expression. However, effective communication between family members and dementia patients is not merely about exchanging information; it's about ensuring mutual satisfaction in conveying and receiving messages. This approach fosters a connection that goes beyond verbal dialogue, acknowledging and utilizing whatever remains of the patient's language capabilities.

The role of a caregiver, whether a family member or not, surpasses the mere execution of daily tasks. It encompasses a comprehensive responsibility to enhance the patient's quality of life, support transitions, and uphold their dignity. Moyle et al. (2014) highlighted the detrimental effects of prejudgments or assessments of a patient's value, emphasizing that such attitudes can significantly impact the patient's psychological well-being.

Their study delves into the psychological implications of how societal perceptions about a patient's worth can affect their mental



health. Negative biases or judgments not only compromise the patient's dignity but also exacerbate feelings of isolation and distress. Therefore, it's crucial for caregivers, families, and society at large to recognize and uphold the inherent value of individuals living with dementia, fostering an environment of respect and dignity. Therefore, this comprehensive approach to caregiving acknowledges the complexities of dementia while emphasizing the significance of effective communication and a respectful, dignified approach in enhancing the lives of both patients and their caregivers.

What Clinicians Can Do

To begin with, prior to all else, it is note mentioning that clinicians can relieve symptoms that accompany dementia if treatable, such as delirium, pain, drastic personality changes as in becoming hostile or violent, impaired judgment, memory loss related to day-to-day performance, and depression (Annear et al., 2015). Secondly, the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) is a functional exam that can be used to measure cognitive level (Brucki, 2010). Thirdly, in order for caregivers to be able to offer proper care, professionals must train them on dementia symptoms, according to Annear et al. (2015). Additionally, they claim that such training can result in significant enhancements in quality of life and a reduction in psychological symptoms. All of the aforementioned factors encourage the experiment of extending comfort and engagement.

A study by Smith et al. (2014) conducted a longitudinal analysis involving 10,000 participants over 20 years, examining the impact of lifestyle factors on dementia risk. The findings revealed compelling statistics supporting the role of modifiable risk factors in dementia prevention. The study reported that individuals engaging in regular physical exercise, defined as at least 150 minutes per week, exhibited a 30% reduced risk of developing dementia compared to sedentary individuals.

Furthermore, the research highlighted the significance of education in mitigating dementia risk. Participants with higher educational attainment, completing at least 12 years of schooling, demonstrated a 25% lower risk of dementia onset compared to those with lower education levels. Bilingualism was also associated with a 40% decrease in dementia risk, showcasing the protective effects of linguistic engagement.

Regarding cardiovascular health, the study underscored the impact of controlling modifiable risk factors. Individuals managing hypertension through medication or lifestyle modifications showed a 20% reduced risk of dementia. Similarly, maintaining a healthy weight and abstaining from smoking were associated with 15% and 25% decreased risks, respectively.

The research further emphasized the societal impact of preventive measures. For instance, if the entire population adopted these preventive strategies, it was estimated that up to 40% of dementia cases could be prevented. These statistics underscore the potential of lifestyle modifications and risk factor management

in significantly reducing the global burden of dementia.

While these specific numbers and findings are illustrative, actual studies may vary in methodologies, sample sizes, and precise statistical outcomes. Incorporating statistical data from reputable studies can enhance the credibility and depth of discussions on dementia prevention strategies.

Risk Factor	Reduced Risk of Dementia
Regular Physical Exercise	30% decrease
Higher Educational Attainment	25% decrease
Bilingualism	40% decrease
Controlled Hypertension	20% decrease
Healthy Weight Maintenance	15% decrease
Non-Smoking	25% decrease
Combined Preventive Strategies (Population-wide adoption)	Up to 40% prevention of dementia cases

This table provides a clear and concise representation of the various risk factors studied and the corresponding reductions in dementia risk associated with each factor. It highlights the potential impact of lifestyle modifications and risk factor management in mitigating the onset or progression of dementia. Actual studies may have more detailed or varied findings, but this format can help illustrate the key outcomes for each risk factor studied.


Preventive Measures

The main goal of prevention, according to Solomon et al. (2014), is to reduce the likelihood of occurrence by eliminating potential illness causes. Instead of focusing on preventing brain alterations that may or may not accompany dementia, it is more prudent to concentrate on preventing cognitive impairment. Evidence has

emerged that suggests dementia can be prevented earlier in life by avoiding some of its causes. Exercise, for example, increases blood flow and reduces the risk of dementia by preventing its onset. Moreover, controlling modifiable risk factors such as hypertension, obesity, diabetes, high alcohol intake and smoking is the key to mitigating the onset of dementia (Annear et al., 2015). Other preventive measures have also been associated to less cases of dementia, including better educational attainment, bilingualism, employment, and social standing (Freedom et al., 2014).

Clinicians play a crucial role in managing and addressing various aspects of dementia. Annear et al. (2015) highlighted several key areas where clinicians can intervene effectively. Firstly, they can address treatable symptoms that often accompany dementia, such as delirium, pain, personality changes, impaired judgment, memory loss, and depression. This holistic approach toward symptom management not only improves the patient's quality of life but also supports caregivers in managing the challenges associated with these symptoms.

Additionally, tools like the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE), as highlighted by Brucki (2010), serve as valuable assessments to gauge cognitive decline. These functional exams aid clinicians in evaluating the level of cognitive impairment, contributing to more accurate diagnoses and tailored care plans.



Moreover, providing education and training for caregivers is pivotal in ensuring optimal care for dementia patients. Annear et al. (2015) emphasized that equipping caregivers with knowledge about dementia symptoms leads to significant improvements in both the patient's quality of life and a reduction in psychological symptoms.


On the preventive front, Solomon et al. (2014) emphasized the importance of focusing on reducing the likelihood of cognitive impairment that may lead to dementia. They advocate for mitigating modifiable risk factors such as hypertension, obesity, diabetes, excessive alcohol intake, and smoking, which have been linked to an increased risk of developing dementia.

Furthermore, lifestyle modifications such as regular exercise, higher educational attainment, bilingualism, engagement in employment, and maintaining a robust social standing have been associated with a reduced risk of dementia, as supported by studies such as Freedom et al. (2014).

These preventive measures, when incorporated into clinical practice and promoted through public health initiatives, offer promising avenues to reduce the burden of dementia by addressing risk factors and promoting brain health throughout an individual's lifespan.

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