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Alzheimer as a Challenge to Health Systems, Crescent Life Expectation, and the Mmse as a Tool in the Screening of Dementities

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Abstract

For the first time in history, most people can live up to 60 years old, in a way that a child born in 2015 in Brazil has a life expectancy 20 years longer than a person born 50 years ago. Having this new circumstance, there are some new health related challenges to be overcome even faster than before. The great question is: can a human being enter their senior years with a nice life quality nowadays? The major obstacles in reaching this goal are the so-called chronic and non-transmissible diseases, such as Alzheimer's Disease, which have been doubling cases every 5 years in people between the ages of 65 and 85, according to recent epidemiological studies. Having a healthy lifestyle can help prevent, slow them down or even in some cases, reverse the condition, but the treatment cannot rely solely on this individual care, it must be a wide public health concern as well. Alzheimer's Disease consists of an insidious, progressive decline of memory and other cortical functions, such as speech, concept and judgment, which happens through mainly two acting mechanisms that lead to brain atrophy in areas as the temporal lobe and the hippocampus, that are responsible for recent memory. There is also an atrophy of some brain nuclei as Meynert's and the septal, which are responsible for the acetylcholine production which is a neurotransmitter mediator of cognitive activity. All of this causes the individual with an advanced stage of this condition to lose their capability to perform even the simpler tasks of their daily routine, including communication, comprehension, personal hygiene, eating and connecting with others; they become entirely dependent. Therefore, this article intends to promote a way of tracking the dementia through the MEEM, alongside the management of patients in order to prevent that early cases reach the lowest point and making it, so the senior life quality only increases.

Key Words: Alzheimer; MEEM; life expectancy; patients

Introduction

At a period in human history, where health challenges are a big concern, whether by climate change, political tensions and social questions. There is also a concern about emerging infectious diseases or how to beat the next drug-resistant bacteria, one fact is certain: the population is aging fast, and for

the first time in history, most humans can live for more than 60 years. With this new paradigm in human history, some new challenges must be faced in relation to health. It can be observed that the rate of aging and the life expectancy are high. A child born in Brazil or Myanmar in 2015, for example, can

expect to live 20 years longer than a child born 50 years ago. In just 35 years, that rate will have increased by about one in three. However, what is questioned is that if the human being is able to enter the so-called third age with quality of life. What is known is that the great challenge faced by the elderly population are the so-called chronic diseases and non transmissible diseases. With a healthy lifestyle, it is possible to reverse them in some cases or delay them. In this sense, the concern for public health should be wide-ranged and seriously discussed. Some. At a period in human history, where health challenges are a big concern, whether by climate change, political tensions and social questions. There is also a concern about emerging infectious diseases or how to beat the next drug-resistant bacteria, one fact is certain: the population is aging fast, and for the first time in history, most humans can live for more than 60 years. With this new paradigm in human history, some new challenges must be faced in relation to health. It can be observed that the rate of aging and the life expectancy are high. A child born in Brazil or Myanmar in 2015, for example, can expect to live 20 years longer than a child born 50 years ago. In just 35 years, that rate will have increased by about one in three. However, what is questioned is that if the human being is able to enter the so-called third age with quality of life. What is known is that the great challenge faced by the elderly population are the so-called chronic diseases and non transmissible diseases. With a healthy lifestyle, it is possible to reverse them in some cases or delay them. In this sense, the concern for public health should be wide-ranged and seriously discussed. Some epidemiological studies indicate that the prevalence of Alzheimer's disease doubles every five years in people aged 65-85 years. Alzheimer's disease, for example, is characterized by an insidious, progressive decline in memory and other cortical functions, such as language, concept and judgment. Alzheimer's disease neuropathy consists in basically two mechanisms of action that lead to brain death. First, there is the formation of amyloid plaques secreted by gamma-amyloid and beta-secretase. At another time, there is hyperphosphorylation of the tau protein, with formation of a network of neurofibers within the neuron. Initially, these mechanisms lead to cerebral atrophy in areas such as temporal lobe and hippocampus, areas associated with recent memory. There is also atrophy of brain nuclei such as those of Meynert and septal, areas

responsible for the production of acetylcholine, which is a neurotransmitter mediator of cognitive activity. There are 3 stages in Alzheimer's Disease lasting approximately 2 to 3 years each. In the primary phase, mild or early, there is a decrease in recent memory, and there may be changes in personality, alternating stages of irritability, hostility, apathy and frustration. In communication, the individual presents linguistic disorders, along with deficits in linguistic reasoning and dysphonia; deficiencies in searching for correct words or remembering names of objects or people. In the moderate or secondary phase, there is a deficit of memory and learning. The patient also changes his personality, indifference, hostility, poor social judgment, low affectivity. All because of their current inability to perform activities that were once part of their daily life. The communication is even more disorganized, in terms of content, presenting content deficit, impairing the understanding of this patient. At the later stage, called tertiary or severe, the intellectual functions will be deteriorated comprehensively, the patient is in a state of total dependence to solve problems and perform daily activities, personal hygiene, food. His personality is totally disorganized, communication is deteriorated with echolalia, perseverance and mutism. Thus, this study aims to show how to track dementia, through the MEEM, along with the management of patients.

Discussion

The current social approach recommended to address the people's aging, which includes the goal of building a world that is supportive of older adults, requires a transformation of health systems that replaces disease-based curative models with integrated care delivery focused on the needs of adults. In the conceptual sense, the report suggests that healthy aging does not mean absence of disease, but maintenance of functional skills. As the individual ages, their health needs tend to become more chronic and complex. Health care that addresses these multidimensional demands of old age in an integrated way has been shown to be more effective compared to the service that deals independently with specific diseases. In Brazil, SUS adopted the organization in Health Care Networks (HCN) as a way to respond to problems experienced in the management of the system, such as the fragmentation of the health system, competition among services, high costs in the health system, the

increase in the prevalence of chronic diseases and the need for monitoring and evaluation. In this sense, the Health Care Networks (HCN) are organizational models formed by actions and health services, with technological configurations and elaborated assistance missions, articulated in a complementary way, with a territorial basis, with the following main aspect: the basic attention as being the most important point of attention and main way of access to the system; consisting of a multidisciplinary team, in order to cover, at least in theory, the entire population.

Results

In addition to emphasizing the basic care of the elderly, in face of the population demand, it would be important to train this network of professionals in the basic units, capable of accurately identifying the level of dementia of the patient. It is common, in clinical practice, for elderly patients to reach the basic units, accompanied by their caregivers or relatives concerned with their mental states. Faced with this question, it would be necessary not only to prepare the professionals who are already working in basic health units, to perform the physical, clinical examination, along with the patient's history, but to reveal, problematize and emphasize, in medical schools, that is, in the training of the doctor, a professional capable of identifying the mental state of elderly patients to not only indicate to a specialized professional. To do this, the so-called Mini Mental State Examination (MMSE), popularly known as "mini-mental" is one of the most used tests in the world, allows the cognitive evaluation of the patient, as well as the screening of dementia, as well as used for evaluation of drug responses. Basically, the MMSE consists of a questionnaire assessing the patient's cognitive ability, through attention and calculation, naming objects, understanding spoken and written commands, and evaluating writing and visual-spatial skills. The score is based on the level of education of the patient, so it is important to emphasize the heterogeneity of teaching in Brazil, whether in higher, middle or fundamental education. In this sense, the professional must be consistent at the time of application.

Methodology

For the application of the MMSE, it is necessary that the application site is adequate, that the professional who will apply the test provides security and privacy

to the patient, so that the information expressed there is for clinical use only. It is also necessary that the professional prepares the material before the test begins. The materials are: a watch, a pen, and a sheet of paper. From then on, it is necessary to obtain the patient's name, as well as age and schooling, information relevant to the possible treatment of some disease. The mini-mental is based on the following explanations, spatial orientation; temporal orientation; immediate recall and recall; attention and calculation; evocation; language and space vision. There is a score for each challenge gotten right, the score ranges from 30 to 35 points, depending on the patient's progress in the test. In the spatial orientation, you will be asked the country, state, city, street / local walking. Where the conversation is taking place. Scoring is a point for each correct answer. In the time orientation, the patient will be asked the year we are, season, day of the week, day of the month, month. Gaining a point for every correct answer. In the case of immediate memory and evocation, the patient is asked to repeat the words: car, vase and brick. It is important that the practitioner speak slowly and advise the patient that he will be asked again, later, that he repeat those words. The score is given from the first attempt, that is, a point for each hit. In the attention and calculation will be asked five simple calculations like: "100 -7? 93-7? 86-7? 79-8. 72 -7? "Being a point for every hit. If the patient fails the question, do not indicate their mistake, just continue to ask the questions. If the patient has a very low score, one or two hits, an alternative is the spelling of the word "world", back to front, gaining a point with each letter. If it is necessary to use this alternative, the maximum score reaches 35 points, adding up the correct calculation and spelling. In the evocation, the patient will be asked which three words were requested at the beginning of the test, for punctuation purposes, each word said is worth one point. In the language, a series of activities will be requested. First they're asked to repeat the sentences: "neither here, nor there, nor elsewhere", worth a point. Then ask the patient to write a sentence that makes sense, worth a point. After that, show a clock and a pen and ask them to name them, worth two points. Then slowly and slowly tell the patient, "Take the paper sheet with your right hand, fold the sheet in half and place it on the floor." In case it occurs normally, they get three more points. If there is no, there is no score, if the patient takes the sheet and does not know what

to do the health professional should not give tips or indicate what to do. Immediately after this, show a written sheet "close your eyes" legibly and tell the patient, "read and do what is written," for a point. Again, there is no need to indicate, again, what should be done. Finally, in the spatial evaluation, it is up to the professional to show a drawing of two

pentagons intersected by a vertex and, again, to ask the patient to do the same. It is important to note that it is important that the drawing has the five vertices and that they are correctly intersected. The patient may ask to see the figure again because, in this case, the evaluation is motor, not memory.

Table 1: Cut-off point based on authority school

0	<18
1+4	<22
5+8	<24
9+11	<26
≥12	27

Source: Sonia. M.D. Brucki. 2003

Differential diagnosis

According to the American Academy of Neurology guidelines, depression is a common and treatable comorbidity in patients with dementia and should be tracked. Vitamin B12 deficiency is common in the elderly, and the serum level of B12 should be included in the assessment routine. Because of the frequency, hypothyroidism should be tracked in the elderly. A brain imaging - computed tomography (CT) or magnetic resonance imaging (MRI) - is

useful to exclude structural lesions that may contribute to dementia, such as cerebral infarction, neoplasia, collections of extracerebral fluid. The diagnostic investigation process to meet the criteria includes a complete history (with patient and family member or caregiver), clinical evaluation, cognitive tracking (cognitive tests such as Mini Mental State Examination), laboratory tests (blood count, electrolytes (sodium and potassium), serum serology for syphilis (VDRL) and cerebral imaging (CT without contrast or MRI).



Diagnóstico da doença de Alzheimer:

Table 2: Key elements of Alzheimer’s Disease criteria

Probable Diagnosis	Clues that sustain AD’s probability	Consistent clues with probable AD diagnosis	Characteristics that decrease the probability of AD diagnosis	Possible AD diagnosis
<p>•Deficits in 2 or more areas of cognition;</p> <p>• Progressive worsening of memory and other cognitive function;</p> <p>• Beginning between 40 and 90 years of age;</p> <p>• Absence of systemic diseases which can cause The Syndrome.</p> <p>• Presence of demential syndrome.</p>	<ul style="list-style-type: none"> • Progressive aphasia, apraxia and agnosia (including visuospatial dysfunction); • Activities of daily living (ADLs) committed and behavioral change; • Family history; • Nonspecific findings (or normal examinations) of CSF, electroencephalogram (EEG) and computed tomography (CT) of the skull. 	<ul style="list-style-type: none"> • Plateau in the course of progression of the disease. • Normal CT for age. • Convulsions in advanced disease. • Others neurological abnormalities in the disease (increased muscle tone, myoclonus, or gait disorders) • Associated psychiatric and vegetative symptoms (depression, insomnia, delirium, hallucinations , problems in behavioral control, sleep disorder and weight loss). 	<ul style="list-style-type: none"> • Sudden onset, apoplectic; • Find neurological disorder in the course of disease; • Seizures or disorders of early disease course ; 	<ul style="list-style-type: none"> •Absence of other neurological diseases, psychiatric or systemic enough to cause dementia; •Presence of atypical clues in the beginning, in the presentation or in the clinical course. • It can be done in the presence of a second disease that can lead to dementia, but is not the only probable cause of it.

Exclusion Criteria:

Patients who present at least one of the following conditions will be excluded from this treatment protocol: identification of inability to adhere to treatment; evidence of unpaid concurrent organic or metabolic brain injury (as examined in the Inclusion Criteria item); heart failure or severe cardiac arrhythmia; hypersensitivity or drug intolerance.

Inclusion criteria:

Patients fulfilling all the criteria will be included in this Protocol of treatment: diagnosis of probable AD according to the criteria of the clinical guidelines of the Ministry of Health on Alzheimer; MMSE with a score between 12 and 24 for patients with more than 4 years of schooling or between 8 and 21 for patients with up to 4 years of schooling; CDR scale 1 or 2 (mild or moderate dementia); and CT or MRI scan of the brain and laboratory tests to rule out other diseases common in the elderly that may cause cognitive dysfunction: hemogram (anemia, bleeding from thrombocytopenia), biochemical evaluation (altered sodium, potassium, glucose, urea or creatinine), thyroid dysfunction (TSH dosage), serology for lues (VDRL) and serum level of vitamin B12.

Treatment

The goal of drug treatment is to provide stabilization of cognitive impairment, behavior and the accomplishment of activities of daily life with a minimum of adverse effects. Since the introduction of the first acetylcholinesterase inhibitor, the cholinergic drugs Donepezil, Galantamine and Rivastigmine are considered the first line, all of which are recommended for the treatment of mild to moderate Alzheimer's disease. The basis for the use of cholinergic drugs relies on increased secretion or prolongation of the half-life of acetylcholine in the synaptic cleft in relevant areas of the brain. It has been known for many years that degeneration of the cholinergic cerebral pathways triggers some of the manifestations of advanced Alzheimer's Disease and, in particular, contributes to the deficits characteristic of cognition. Cholinesterase inhibitors, which slow the degradation of naturally secreted acetylcholine, have offered a more significant advance.

Conclusion

It is important to emphasize that the MMSE is only a resource for assessing the patient's cognitive abilities, and just the use of MMSE alone is insufficient for the diagnosis of Alzheimer's disease. Faced with the growing demand and emphasis on mental health care, the MMSE is a fast, simple, quick-application test capable of evaluating the mental faculties of the patient. In this way, the incentive to include this test is extremely important.

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