



Anamnesis in Alzheimer's Disease: A Review and Proposal

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

In general, mental illnesses take the patient away from the family, making his quality of life lower, and in particular, Alzheimer's disease (AD) is a mental morbidity increasing faster in the world. The diagnosis of AD is predominantly clinical with the test of imaging as adjuvant; however, these tests could be difficult to obtain in developing countries. Therefore, anamnesis is the main tool in the diagnosis of AD and must be used efficiently. The propose of this critical review is to indicate a logical and scientific path for clinical procedures in the diagnosis of brain disorders, specifically for AD. Then, a literary search was made, and the subjects of the articles were directed to the descriptors *clinical procedures*, *biochemical analysis and diagnosis*. Twenty-three articles were selected, in addition was used a WHO text and two books for the ground of theory, and from that, a

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discussion was carried out, based on the deductive analysis of the general criteria of the psychiatric diagnosis for the specific ones, and, finally, a heuristic reasoning was associated linking the scientific method to the studied methods. Finally, the psychiatrist's preparation to carry out the anamnesis of the patient with dementia can be added to the current scientific method to make the procedure more accurate in order to avoid possible errors.

Keywords: Alzheimer's disease; anamnesis; diagnosis; methods.

1. INTRODUCTION

Health and mental health have complex concepts that are historically influenced by socio-political contexts and the evolution of health practices [1]. However, today, there seems to be a consensus around the concept offered by the WHO, i.e.: "Health is a state of complete physical, mental and social well-being and does not consist merely of the absence of disease or infirmity" [2]. Mental health is a state of well-being in which an individual expresses his or her abilities, copes with the normal stressors of life, works productively and fruitfully, and contributes to his or her community [2].

Specifically, in relation to the mental health, the concept of health has been more controversial, however, the most accepted by physicians in Brazil is the one adopted by the WHO [1].

Historically, sick people were removed from the society without care or when cared, they were like prisoners and subjected to various degrading methods such as drowning, electric shocks, administration of high doses of insulin, something that led Freud to seek alternatives for the treatment of the sick people and culminated with the psychoanalytic theories.

More humane, perhaps, but no less invasive, was the use of lobotomy in the early twentieth century [3]. Even at that time, patients without a cure were kept in captivity. Later, the growth of the pharmaceutical industry through new drugs, allowed a more decent treatment for mental problems in general [4].

It becomes necessary to understand that until recently, a patient with mental problems was removed from home and taken to psychiatric hospitals in Brazil. However, nowadays, the cases that require a permanent hospitalization are rare and the use of modern medicines allows a better quality of life to the patient [5].

However, it is important to note that a patient who has only physical problems is or used to be hardly sent away from the family.

Mental alterations have never been well accepted by the society, not only those with deficits, but those with higher intelligence. The so-called "geeks" have suffered "bullying" in schools everywhere in the world [6], the worst cases being found in Japan and the United States. Changes in what is considered a normal mental activity do not seem to be well understood by the society in general, even by the patients' relatives, who are most often their caregivers.

In this sense, mental health-related disorders and problems since the 1990s have quietly become the leading cause of disability, morbidity and premature death, indistinctly, both in developed and developing countries [7]. More specifically, in developed countries, Alzheimer's disease and other dementias are the third leading cause of disability and premature death whose growing prevalence would be the increase in life expectancy and the lack of infection control [7].

Much of the mental problems in the elderly have as a cause AD which is characterized as a neurodegenerative disorder that mainly affects elderly people, above 65 years old [7,8]. The origin is still unclear, but it is believed to be a multifactorial disease related to the interaction of environmental and genetic factors, having as foundation two main neuropathological aspects: extracellular amyloid plaques and intracellular neurofibrillary tangles [9].

These changes, in the Central Neural System, elicit an inflammation and neuronal dysfunction, occasionally succeeding the cell death and brain deterioration that can be observed via beta-amyloid protein markers [10], but invasive and costly. Consequently, there is an impairment of the individual's memory, modifications of thinking and other brain functions.

Soon, AD is a dementia that evolves gradually and slowly, and from its onset to the first noticeable symptoms, death can range from 10 to 20 years after the onset of AD [7,11]. Initially,

short-term and working memory loss occurs, and as the disease progresses there is an impairment of long-term memory [5].

Certainly, both biochemical and therapeutic approaches are important in the study of AD, but as the cure still seems distant, the therapeutic approach to improve the quality of life of the patient seems to be the most appropriate path to prioritize. This is because AD overly limits the individual who begins to depend completely on the family and/or the caregiver [8]. Furthermore, with the increase in the prevalence of AD in recent years, there is a projection that it will increase more and more, reaching 47 million people in 2015 and 132 million by the year 2050 [7]. Consequently, both caregiver training and therapeutic processes need to be increasingly elaborated.

In this sense, the anamnesis is the most important tool of the physician for the treatment of AD and must be used carefully and efficiently. Indicating a logical and scientific path for clinical procedures is the aim of this article.

2. METHODOLOGY

This work is a literature review directed to aspects of the care of the elderly with articles published between 2011 and 2023, one from 1996 that is considered a pillar of the psychiatric anamnesis in Brazil, one about gifted students, one about teaching psychiatry. In addition, a classic WHO text about the concept of health, and also, as part of the theoretical foundation, three books were used.

From the systematic studies of the texts, the topics psychiatric anamnesis, anamnesis of AD, clinical diagnosis and new perspectives for the clinical diagnosis of AD formed the basis of the theoretical discussion.

The search was made by the CAPES Periodicals system involving several databases such as PubMed, Elsevier, Scopus, Web of Science, Scielo, using the subjects "Anamnesis x Psychiatry", "Anamnesis x Alzheimer's disease" and "Alzheimer's disease and molecular biology" in the last 13 years considering only the advanced search with the criteria: articles, English language; from 01/01/2011 to 01/04/2023.

For the terms "Anamnesis x Psychiatry" 177 articles were found, for the terms "Anamnesis x Alzheimer's disease" 21 results were found, and for the terms "Alzheimer's disease and molecular biology" 43299 articles were found.

The exclusion criteria initially were 1] articles that were not directly related to the objective of this article, 2] repeated articles between the two subject terms, 3] case reports. After this procedure 27 subject-specific articles were used more three books.

The inclusion of the articles was made considering the subjects pertinent to AD in relation to the topics 1] normative; 2] biomarkers; 3] clinical anamnesis and diagnosis; 4] imaging diagnosis; 5] others (Fig. 1).

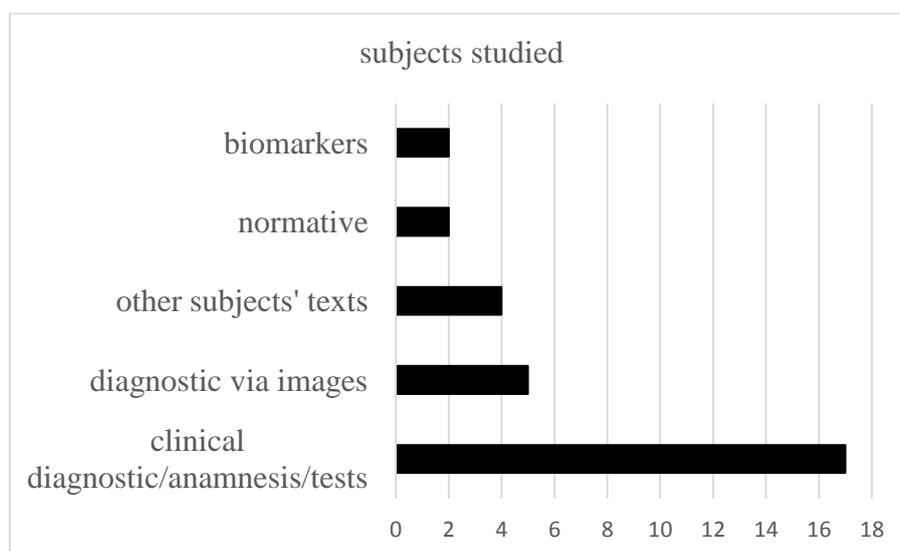


Fig. 1. Numbers of texts divided by the subjects that served as the basis for this work

3. RESULTS AND DISCUSSION

The main subjects derived from the searched subjects refer to AD, its diagnoses, biomarkers, imaging diagnosis, and psychiatric clinical procedures.

The texts studied were 15 linked directly to the topic of diagnosis, anamnesis or tests from the years 2011 to 2023; two texts refer to the regulations, one in the WHO and one in Brazil; two texts refer to the biomarkers of AD; five texts deal with imaging diagnosis; and four texts were consulted on the general aspects to compose the epistemological aspect of the work (Fig. 1).

From the results of the association of these texts, a theoretical basis was generated to indicate the clinical analytical procedures in psychiatry and specifically for AD; and finally, in a heuristic process, the bases of the current scientific method were added to the anamnesis procedures in a more elaborate vision in technical and scientific terms for a very specific procedure, given the importance of the clinical aspect in AD.

The basis of this discussion starts from the general to the specific, with information about the general procedures about psychiatry, which is the universe of dementias where AD is a subset, intersecting with other psychiatric morbidities. The sum of the general and specific aspects can be linked to the scientific aspects to generate a more complete diagnosis.

3.1 Psychiatric Anamnesis

In clinical practice, anamnesis consists of recalling previous health-related events, identifying current symptoms and signs, with the main purpose of understanding, as accurately as possible, the history of the disease that brings the patient to the consultation. In the psychiatric patient it is no different, through the psychiatric anamnesis it is possible to obtain the necessary data for the Clinical Psychiatric History (HCP) and the Mental State Examination (MSE), giving the necessary direction for the diagnosis that follow the statements of the American Psychiatric Association (APA) and the ICD, mainly ICD 10, in general terms.

The psychiatric evaluation begins even before the interview, in which the patient's facial expression, clothing, movement and manner of presenting himself must be observed [12]. The

interview is essential for the diagnosis and must be patient-centered. The questions should be asked to the patient in a clear, concise way and with an accessible vocabulary.

If the patient brings a companion, the final time of the interview should be dedicated to him/her, if there is a desire to add something more to the story told by the patient. For incapacitated patients, the questions should be asked to the accompanying person.

Care must be taken with possible alterations in the truth of both patient and attendant, as the patient may not be conscious and yet want to appear more ill out of need or appear strong and not want to appear debilitated. In the same way, the companion may want to get rid of the patient because of the difficulty of living with him, leading him to think that the best thing would be the hospitalization.

In these cases, more than one consultation about the patient's history should be done, if possible, with more than one companion, separately, to check possible conflicts, which would be equivalent to an extended assessment and should be practiced in many complex cases [13].

There is more than one type of interview cited in the literature, but in psychiatry, the most commonly used type is the semi-structured interview and that, in some countries, is used a standard assessment in the psychiatric and psychological anamnesis as in Sweden [13]. The semi-structured interview, despite not being standardized, allows the professional to collect data in an active way, which enables the construction of the clinical history and allows the formulation of an examination that verifies the mental functions, according to a script [12].

In this way, we emphasize the importance of establishing a line of reasoning by means of a questionnaire, with the structuring of the HCP and the EEM so as not to lose the extension of the whole to be analyzed, considering that the Psychiatric Clinical History (HCP) or Psychiatric Anamnesis (AP) directs the diagnostic hypothesis through the guidelines:

The diagnosis, the following are the topics to be followed: 1] Identification (1] Identification (gender, age, marital status, ethnic group, origin, religion, profession); 2] main complaint (reason for the consultation); 3] history of current disease (report from the beginning of the disease until the

moment of the consultation); 4] antecedents (medical history such as surgeries, weight gain and loss and use of psychiatric medications and other previous diseases and treatments); 5] personal history (main milestones of each age, from pre-birth history until adulthood); 6] bonds (job, culture, community and church); 7] family history (medical history with a psychiatric focus) 8] pre-morbid personality (excessive concerns with order, cleanliness, punctuality, habitual mood, capacity to express feelings, the way he usually expresses himself, level of mistrust and competitiveness, capacity to carry out plans or projects, and the way he reacts when he feels under pressure); 8] physical examination (in order to check whether the signs and symptoms are associated with organic or psychiatric conditions).

According, the MES is an instrument in which the patient's mental functioning is momentarily evaluated, based on observations made during the anamnesis, because, for example, the examination of the mental state of a schizophrenic patient may stop presenting hallucinations if he or she is medicated [12] (Fig. 2).

The MES is organized through the following topics:

- i. **General presentation:** where the physician's general impressions of the patient are described, including: 1] appearance: patient's image, appearance, age, hygiene, way of dressing, and mimicry expression; 2] psychomotricity: behavior and motor activity, hyper or hypoactivity, tremors, spasms, motor anomalies, stupor and catalepsy; 3] interview situation or interaction: place where the interview took place, presence of other participants, eventual interurrences, interest in the interview, cooperation, indifference, and negativism.
- ii. **Language and thought:** must be jointly evaluated through the speech during the anamnesis. At this point it is observed: 1] speech characteristics: spontaneous or only with stimulus, volume, alteration in intonation, aphasia, dysarthria, stuttering and hoarseness; 2] progression: quantitatively decreased language (succinct, monosyllabic, slow or accelerated flow and prolixity); 3] thought form: the formal organization of thought is observed, its continuity and efficiency in

reaching a certain objective, by means of [a] circumstantiality: the end of a given speech is long delayed by the incorporation of irrelevant and tedious details; [b] tangentiality that is characterized when the goal of the speech does not reach or is not clearly defined; [c] perseveration: when repetition of what has been said occurs; [d] flight of ideas characterized by an inappropriate association of thoughts; [e] incoherent thinking characterized by the loss in the logical association between thoughts; [f] thought blocking characterized by a sudden interruption and when he returns he talks about another subject that has no correlation with the previous one; [g] neologism; [h] echolalia.

- iii. **Thought content:** the concepts emitted by the patient during the interview and their relation to reality, encompassing predominant themes and/or with peculiar characteristics such as anxiety, excessive concern about the future, depression, hopelessness, suicidal, obsessive, and compulsive. Also, it is important to observe the logic of the thought, if there is an overvaluation of ideas or even delusions.
- iv. **Abstraction capacity:** reflects the ability to formulate concepts and generalizations.
- v. **Sense and perception:** in this question the sensations and perceptions of the patient resulting from the expected stimulation of the respective sense organs are analyzed, some alterations stand out as [a] depersonalization (strangeness of one's own body); [b] derealization (surrounding environment seems strange and unreal); [c] illusion; hallucination, associated to the five senses (touch, smell, hearing, smell and taste); d] associated to sleep, being it normal or pathological, in this sense, one has, before the sleep, hypnagogic, and upon awakening, hypnopompic.
- vi. **Affectivity and mood** are analyzed for the emotional tone, presence and intensity, which are most prominent in the anamnesis as: [a] anxiety; [b] panic; [c] sadness; [d] depression; [e] apathy; [f] hostility; [g] anger; [h] euphoria; [i] elation; [j] exaltation; [k] distrust; [l] ambivalence; [m] perplexity; [n] indifference; [o] affective blunting; [p] the modulation of affect control; [q] the thought/feeling association and the organic equivalents (changes in appetite, weight, sleep, and libido). At this

point one should also analyze suicidal thoughts, energy, and motivation.

- vii. **Attention and concentration:** the ability to focus and maintain attention on an activity is considered, involving the attention/distraction relationship, when facing external or internal stimuli. In this sense, it is analyzed if there is a selective inattention and if focusing is impaired, or if there is a difficulty in maintaining attention, that is, if maintenance is impaired.
- viii. **Memory:** the memory analysis will help in some differential diagnoses, the beginning of its analysis begins when the psychiatrist is collecting data about the patient's clinical history, and can verify if the patient remembers, for example, the previous treatments, surgeries, that he/she has already undergone. In addition, it must be observed if the patients remember daily situations they have lived through such as the school where they studied, their loved ones. In addition, specific existing tests can be applied, such as the "Rivermead Behavioral Memory Test (RBMT)", the "Short Cognitive Test (SKT)", the subtest "Logical Memory of the Wechsler Memory Scale - III (WMS-III)" (CHAVES et al., 2011), which are already preliminarily validated for the Brazilian population, given the growing number of applications in the country.

In the memory test (Fig. 3), one should analyze: 1] the remote memory, in which one observes the events of the patient's own history, 2] the events, in which one analyzes the recent memory and the events that occurred in the last days and weeks, and 3] the immediate memory, in which one analyzes events that occurred a few minutes ago, that is, during the interview. In case of absence of some of the memories, check for confabulation-recording of false memories.

- i. **Orientation:** we analyze auto psychic aspects in which the patient must recognize himself as [a] his own name, [b] recognize people in his environment such as name and social role, [c] know who the interviewer is, [d] time orientation such as day, month, week, important time marks, and space (place where he is at the consultation, city and state).
- ii. **Consciousness:** the level of consciousness is analyzed; the individual can present full consciousness, drowsiness, decreased wakefulness, stupor, delirium, twilight state, and even coma.
- iii. **Intellectual capacity:** based on education and sociocultural level, it estimates the expected level of intellectual performance and the capacity to understand and integrate experiences. In this question, it also evaluates if there is an intellectual impairment, verifying if the person has knowledge of general subjects or themes, if the individual has the capacity to solve simple mathematical problems, and also the capacity to interpret a text. In addition, it must also be analyzed if there is the presence of a mental deterioration, either global with an impairment in the intellectual functioning, without an organic brain dysfunction, such as pseudodementia.
- iv. **Critical Reality Judgment:** Checks whether the patient's actions are determined by a coherent assessment of the reality from the point of view of mental functioning and adaptive capacity, including the realistic level of projects and assessment of one's own achievements.

Note that the above stages rely on the disciplined attention and concentration by the analyst for the mental health check, which is within the WHO scope of health [2].

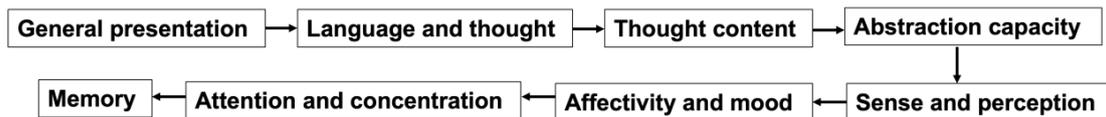


Fig. 2. The MES instrument topics organization
The arrows indicate the order of the process



Fig. 3. The topics to be analyzed in the memory tests
The arrows indicate the order of the process

Other systems can be used for the psychiatric anamnesis that are simpler, such as the one structured by the Botucatu School of Medicine [14], which follows the following flow: 1] current complaint and duration; 2] history of current mental disorder; 3] family constitution and relationship; 4] family and personal morbid history; 5] including early development; 6] behavior during childhood and adolescence; 7] schooling and conduct at school; 8] occupations; 9] sexual and marital history, children; 10] general morbid and psychiatric history; 11] use and abuse of psychoactive substances; 12] antisocial behavior; 13] leisure activities; 14] religion and current living conditions.

The data above are an indication of aspects to be analyzed and avoid incomplete procedures that may prevent the discovery of comorbidities due to a lack of data for analysis. In this sense one should follow some standards of anamnesis [13] and consider the empathy with the patient as fundamental to the procedure as the basis for a more adequate relationship in the clinical process [14].

3.2 Anamnesis in Alzheimer's Disease

The differential diagnosis is fundamental, since there are other pathologies, such as obstructive sleep apnea, which also cause memory problems, ageing, and obstructive problems in the arteries that irrigate the brain or in its sources, such as the carotid and vertebral arteries.

Thus, specifically for the case of a suspected patient with Alzheimer's disease, it is necessary to add some questions in the psychiatric anamnesis to assist in the diagnosis, the following questions according to Atri [15] being: 1] when was the last time the patient's thinking was normal; 2] what was the first major change observed; 3] what is the most prominent symptom or change now; 4] what is the most bothersome symptom, problem, or behavior; 5] how have these symptoms progressed; 6] whether there are major fluctuations in symptoms on a daily basis; 7] whether there are other unusual associated features, such as falls, weakness, tremor, parkinsonism, personality changes, or strange behaviors; 8] whether there are temporal associations with the onset or worsening of symptoms, such as a gradual decline after a major illness or surgery.

It is emphasized, the importance of tracing the course of the evolution of symptoms and the rhythm because there are situations in which one has a sudden onset and a rapid deterioration of hours or even days, and, in these cases, he should be considered in an underlying encephalopathy or delirium. However, in cases with a slower onset and progression over months or years, the likelihood is that it is AD.

3.3 Clinical Diagnosis of Alzheimer's Disease

The general diagnosis of AD is predominantly clinical. Because AD is a progressive neurodegenerative disorder [8] and is the most frequent form among the dementia syndromes, its diagnosis is based on a syndromic identification of dementia followed by the fulfillment of the international criteria established by the National Institute on Aging and Alzheimer's Disease and Related Disorders Association [16].

These criteria are endorsed by the Brazilian Academy of Neurology (ABN) and ensure a greater accuracy that the dementia in question is a consequence of AD [17]. Although the effective diagnosis of this disease is made through autopsy, a clinical diagnosis made through standardized criteria is associated with a sensitivity of 81% and a specificity of 70% when compared to autopsy-proven cases [18].

Thus, it is first necessary to understand how dementia, of any etiology, is diagnosed, i.e., when there are cognitive or behavioral (neuropsychiatric) symptoms that interfere with the ability during work or usual activities, representing a decline from previous levels of functioning and performance that are not explainable by delirium (acute confusional state) or a major psychiatric illness [19].

Therefore, once dementia is diagnosed, some other characteristics should also be covered, such as: 1] insidious onset, that is, a gradual evolution over months to years; 2] presence of a worsening cognition either by a report or observation; 3] amnesic presentation, characterized by deficits that include an impairment in learning and a recall of recent information or a non-amnesic like presentation in language, evidenced by a word search; 4] visual spatial presentation that includes agnosia of objects, an impaired face recognition, simultanagnosia, alexia, and an executive

dysfunction which demonstrates deficits in reasoning, judgment, and problem solving [19].

However, it is necessary to consider some other conditions such as: 1] history of stroke related to the onset or worsening of cognitive impairment; 2] prominent features of primary a progressive semantic variant aphasia or a primary progressive non-fluent aphasia; 3] evidence of another neurological disease or use of medications that could have a negative effect on cognition; 4] features of frontotemporal dementia; 5] essential features of dementia with Lewy bodies. So, in the presence of any of these conditions the diagnosis of a probable Alzheimer's dementia should not be applied [19].

In this sense, the methods used to detect a cognitive impairment consist of the association of anamnesis with an objective cognitive evaluation. The former, is equivalent to an interview, a dialogue between the physician and the patient or an informant that aims at reconstructing the facts and events directly or indirectly related to an abnormal situation in the patient's life [20].

Useful questions that can be asked during the anamnesis in which AD is suspected have already been explored above.

Considering the use of tests, a cognitive assessment should be performed by applying the brief mental status examination or "Mini Mental State Examination" [21]. This is the most widely used test to assess the cognitive function, because it allows a standardized, simplified, reduced and quick analysis in the clinical context [22], and should be used as a screening tool, because despite assessing several domains such as spatial and temporal orientation, immediate and recall memory, calculation, language-naming, repetition, comprehension, writing and copying of drawing, it does not determine a definitive diagnosis [17].

Moreover, it is valid to emphasize that a neuropsychological assessment should be adopted only when the anamnesis and the brief cognitive examination of mental status are not sufficient to allow a reliable diagnosis [17].

Then, cognitive or behavioral impairments should affect at least two domains to be suggestive of AD, among them: 1] memory, executive functions, visuospatial skills, language, and 2] personality or behavior. In this last domain, it is interesting to delve deeper, as it covers

symptoms that include mood changes (lability, uncharacteristic fluctuations), agitation, apathy, disinterest, social isolation, loss of empathy, disinhibition, obsessive, compulsive, or socially unacceptable behaviors [17].

Besides these symptoms being noticeable and being the key points for the diagnosis in general, there is the aggravating factor that they impair the quality of life of both the patient and those who are in his or her environment. In this context, studies show that more than 80% of patients with AD-related dementia have at least one neuropsychiatric symptom, from the onset of a cognitive impairment, with apathy being the most common disorder among them all [2].

Imaging diagnostics such as Magnetic Resonance Imaging (MRI) and Computed Tomography (CT), even without the contrast, allow to analyze the hippocampal atrophy [23], considered, by many researchers, as a key structural biomarker in the diagnosis of AD, notwithstanding this dimorphism of the hippocampus is present in other diseases [24].

Functional Magnetic Resonance Imaging and Single Photon Emission Chromatography scans [23,25] that measure the blood flow reaching the brain can be added for more details, as recent studies have shown that in cognitive disorders, there is a lower blood perfusion in the brain [26].

Positron emission tomography (PET), allows to qualify the low temporoparietal glucose metabolism, an important feature of AD [27]. These techniques are not definitive in the correct diagnosis, even with the removal of CSF [10,25], which has the disadvantage of being invasive carrying a high risk to the patient, besides being financially limiting for the standards of Brazil and for the population in general, which can be an impediment added to the delay of the examination through the Unified Health System (SUS), which shows the importance of a good and controlled clinical diagnosis.

3.4 A New Perspective for the Clinical Diagnosis of Alzheimer's Disease

Citing the methods that are used for the clinical diagnosis of mental disorders, in the specific case, for AD, does not always favor an improvement in the performance of the result. This is because its diagnosis presents a significant rate of errors observed without considering those that cannot be verified, occurring, among other factors, due to the

intersection of effects of various disorders related to age gain, other morbidities such as Korsakov's disease and other cognitive dementias [5].

Clinical training, then, does not seem to be sufficient for a more accurate diagnosis of AD [25]. However, the hit rate should depend on the accuracy of the diagnosis that varies according to the education and training of each physician. In fact, the usual academic training does not always allow a view detailed enough to perform a deep analysis of the patient [13], also lacking the perception of a general aspect in relation to the environment where the patient is inserted.

If the clinical diagnosis is the main and differential for the finding of AD, then, hypothetically, the patient depends on the ability of the physician to have the correct diagnosis, because, in fact, an encephalic atrophy can generate diverse effects and occurs with age gain, but does not necessarily represent a definitive diagnosis of AD [7], and can be improved by imaging analyses [25].

Following this reasoning, the center of attention turns to the Aesculapius, the person responsible for the patient's health and quality of life. In this way, his intellectual training is fundamental and should be independent from the university where he derives, because if it is, doctors should be chosen for the origin of their degrees. Individual training will depend on the physician's own choice to graduate more or less well and prepare to follow the Hippocratic oath.

In fact, the measures associated with the humanitarian training do not cover all doctors, especially those who have more than 10 years of course completion that could not see the techniques involving spirituality and empathy related to the modern approach in anamnesis [14].

Within this scope, and without disregarding the empathic approach, the best intellectual training, would be for the physician to have a good relationship with the scientific method, which brings with it the basis of a judicious knowledge and science [28].

It is important to emphasize, yet again, that the human formation of the physician is essential, but at this point, we are indicating logical processes of analysis. Following this path, the scientific method will indicate general steps such

as: 1] a detailed study of the theory (obtained by previous and present studies); 2] observation of the facts and an analysis of the observations, which are the results (this is the moment of the use of the methods already mentioned); 3] confirmation of the results, which is very difficult to achieve in a single consultation, so a more extensive evaluation is indicated [13]; 4] testing the hypothesis of the diagnosis, for example, is it AD, is it another dementia, is it another morbidity?; 5] retesting the hypothesis through means others than the one used, if HCP the first time, EEM the next and; 6] generating the conclusion with a wealth of details.

Therefore, it is worth to emphasize that the exposed does not indicate the pretension of generating a method, because they already exist, but of indicating and reinforcing a judicious scientific analysis for the diagnosis of mental illnesses, mainly for AD.

We must emphasize the importance of the scientific training of the medical student in Scientific Initiation programs, scientifically based classes to explain the processes and facts, training for scientific writing, *stricto sensu* post-graduate studies, and a constant theoretical improvement.

4. CONCLUSION

Since the diagnosis of AD is mainly clinical, the preparation of the psychiatrist/neurologist in performing the anamnesis is fundamental for the quality of life of the patient with dementia, because the misdiagnosis with medication for AD, can generate mental problems [7,29,30,31]. In this sense, in a general aspect to the particular, i.e., in a deductive reasoning, the psychiatrist should know the procedures of psychiatric diagnoses added to those specific to AD, and, added to this, we propose, heuristically, the use of the current scientific method to make the procedure more methodical in order to avoid possible errors with a strong scientific preparation with a focus on the analysis of the anamnesis process.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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