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Do Alzheimer victims live in a different era?

Marwan Abdulraheem Yass

Department of Basic Sciences, Faculty of Dentistry, University of Al-Kitab, Altun Kopri, Kirkuk, Iraq.

*Correspondence: Marwan Abdulraheem Yass

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Abstract

Background: *Generally, less attention has been paid to Alzheimer patients in Iraq, in comparison with other countries regarding monitoring their behavioral changes throughout illness.*

Methodology: *For almost eleven years, efforts were dedicated to monitor the behavioral changes of twenty-three patients diagnosed Alzheimer victims spread across three distinct countries (Iraq, Jordan and Sweden).*

Results: *A comparison has been made to compare the pre-and post-diagnosis life histories of Alzheimer patients i.e. pre- and post-diagnosis behaviors, physical environments, lifestyles, and social interactions. Apart from the common symptoms of the victims a few remarkable behavioral experience was detectable i.e. Relief of a significant phase of their past life, retaining of familiar habits, interests, and behaviors relevant to their past.*

Conclusion: *The findings highlight unique insights into the multifaceted nature of Alzheimer's progression.*

Keywords: Alzheimer's disease, behavior, Dementia, lost memories, neuronal disorder.

Introduction:

Alzheimer disease (AD), a neurological disorder related to dementia, signifies the gradual decline of cognitive functions due to the degeneration and eventual disappearance of hippocampal cells, situated within the innermost layer of the temporal cortex **[1].** The hippocampus and the cingulate gyrus form integral components of the limbic system, the important part for memory consolidation, communication, decision-making, and the implemented part of daily tasks like driving or dressing **[2].** Moreover, they play an essential role in regulating emotions, instincts, and involuntary actions i.e. fear response, feeding, or sexual behavior **[3].** Consequently, disruptions in these regions manifest as alterations in behavior

and emotions, particularly in later stages, although manifestations may vary among individuals **[4].**

The onset of Alzheimer creates a disturbance in the production and release of excitatory neurotransmitters, mainly acetylcholine (Ach), which is necessary for accurately transmitting electrical signals between neurons (synapsis) consequently, preventing misrouted neural signals and erroneous circuits within the brain **[5]**. By the time, these neuronal structural changes increase, exacerbating accompanying symptoms **[6].** The majority of individuals exposed to Alzheimer are elderly people (around 60 years) and escalates with advancing age, meanwhile women exhibit a higher susceptibility than men **[7].**

In USA, approximately 5.8 million individuals aged 65 and above live with Alzheimer's disease, with 80% of them being 75 years or older **[8];** while among 50 million people diagnosed with dementia, an estimated 60% to 70% are believed to have Alzheimer's. Worldwide, other countries are not devoted of Alzheimer patients while researches on AD in Iraq are so scanty. Iraqis use the term ”dementia” to describe the patients and correlate their behavioral changes to advanced age. The objective of this research is to study the behavioral changes associated with AD patients in Iraq and compare with other patients in two more countries, Jordan and Sweden.

Methodology:

This study deals with the lives of 23 late-staged Alzheimer's patients from both genders (13 women and 10 men) who reside across 3 different countries i.e. 5 in Iraq, 4 in Jordan, and 4 in Sweden. Details of personal behavior of each individual patient of the AD postdated to over 80 years when collected from their close relatives. Methods of extracting and gathering precise information varied, including direct monitoring and observation, medical history, family reports, and updates from trusted relatives. Their pre-and post-diagnosed health status were compared, accordingly.

Results:

The results are categorized into 2 main groups (G1 and G2):

Group One (G1): Common abnormal characters observed among all patients include:

1. At the late stages of Alzheimer’s (AD), the patients suffered a profound memory loss, struggling to recall recent events and in recognizing family members, including their names and relationships.
2. Patients could not perform daily tasks i.e. reading and writing at home.
3. They often repeated stories or could inaccurately remembered passed events.
4. During conversations, their responses frequently diverged from the topic or were irrelevant.
5. Patients experienced confusion most of the time.
6. They lacked concern for their appearance and had difficulty choosing their clothes.
7. Patients experienced incontinence or difficulties with toileting.
8. Some patients had trouble outside the home and frequently became lost within a small sectors.
9. Their sleep patterns became hard and irregular, with difficulty in sleeping day and night.
10. Patients often experience unconsciousness.
11. Some patients had shown abnormal movements and reflexes at times.

Group-2 (G2): Some distinctive findings were detected i.e. identification of a few unique behavioral patterns as followings:

1. Each patient appeared to be reliving a specific period of their past life at a distinct age e.g. some patients behaved similarly to their life in younger ages with a single individual behaved as he used to do at twenties, while another behaved even beyond their twenties.
2. Certain patients demonstrated sustained interests in possessions from their youth ages and healthier days e.g. six women expressed a preference for shiny objects which reflect their passion for golden jewelry in their younger years. Conversely, another patient displays a tendency for collecting iron objects i.e. as nails, and their attempts in hiding them in the house.
3. A single female patient showed a tendency to destroy indoor plants and denied responsibility reflecting her earlier hatred to indoor plants. Similarly, another woman exhibits a fear of dogs in a same feeling she experienced in her younger days.
4. Throughout each patient's life history, it appeared that their current psychic behaviors were specifically identical in their youth. For instance, if a patient was calm during a certain period in the past, he exhibited a similar behavior now. Similarly, a woman who used to be nervous, irritated, and aggressive continued to show similar traits observed 35 years ago.
5. Regarding lifestyle, several patients continued to live and behave as they did during a specific limited age in their lives.
6. Despite the advancing age, some patients retained significant physical strength. For instance, one woman lifted a heavy wooden chair and repeatedly smashed it until it broke.
7. One female patient firmly believed that her current residence is where she lived 35 years ago. Consequently, she often attempted to leave her current home in search of her previous one, leading neighbors to intervene when she becomes lost. Moreover, she frequently pleaded for help, convinced that she is being held captive and must return home.
8. In another case, it was believed that patients had lived alone with Alzheimer for an extended period.
9. Secluded living conditions had led to deficient nutrition and their food lacked essential elements.
10. Some patients have experienced a loss of social connections, unable to participate in visits or attend special occasions. They have not received visits from relatives or friends.

Discussion:

Regardless of common symptoms detected in almost all Alzheimer's patients cited in previous studies a few had appeared in G1; yet individual variations of symptoms, which are too many, could also be found. Some different factors assist in developing the AD. These factors are scattered among the nine patients, such as; living alone with isolation from families, relatives, and friends. Others haven't attended any sort of social life. Symptoms found in G2 of this study, despite some common signs, could indicate a few new features that have noticed in our sample patients. Despite sharing main common characteristics and behavior for a limited period however; discontinuity may become possible from their previous age; yet, each Alzheimer's patient looks as if living in a new era and a new age. The discontinuity that may represent a specific period within their age could be subject to personal variations. These variations are dependent on several factors that need further investi-

gation. If Alzheimer's disease retains patient's old memories rather than the new ones, then it sets the patient back to a time when they will again seek their hobbies and interests of that specified period and age. One of the unique and strange findings is that each patient's early behavior at a specific age, before the disease (e.g. at age 23) is the same that determines his future behavior with the illness after many years. Hence, if a patient was nervous in the specified period, previously, he would have remained sharp-tempered following Alzheimer illness, meanwhile, if another patient was calm at earlier ages of 33, then his temperament would be the same after the illness. Interestingly, some Alzheimer's patients continue to celebrate their strength, particularly, those who have not been weakened by age or their disease, and still have outstanding muscle control, contrary to popular belief **[9].** This is interpreted that the disease may cause some areas of the brain, responsible for movement and balance to act differently. The latter requires caution in dealing with them, especially the nervous and irritated ones.

Some patients were still feeling nostalgic and longing for a place where they grew up as part of their old memories. Hence, they kept trying to return without thinking about the danger of losing the way. Such attitude refers to a state of confusion and lack of awareness. Despite the unconsciousness of those who are having a late severe state of the disease, it seems that they still retain longing and sympathize toward some of the places or events they have previously experienced in their life. Hence, no matter the level of the unconsciousness might be it wouldn't delete their instinct cognitive emotions. Looking into the cases in Sweden, it should be noted that it is normal for the elderly to be removed from their homes and taken to retirement homes (Nurse home) where they sometimes have little to no contact with their families and relatives. It's been determined as we believe that this sudden change de-stabilizes the person, causing confusion, hopelessness, longing, and in some cases, is a catalyst for Alzheimer's disease when the seldom family member visits and quality services of the staff do not compensate the missing relatives or the proper family life at all.

It was noticed in Kurdistan region of Iraq, that patients were suffering from dietary quality as the lack of food diversity and essential nutrients, along with a period of isolation, may have all been factors that contributed to the patient developing the disease **(10).** Despite all the confirmed symptoms associated with Alzheimer's disease i.e. mild confusion and difficulty retaining new memories; yet, there are still other medical factors that could be associated with the disease and may have a direct connection **[11]**. It is suggested that people with rare genetic alterations may develop Alzheimer and some evidence suggests that the same factors that cause the risk of heart disease may increase the chance of developing Alzheimer's disease. Other associated symptoms include high blood pressure, high blood cholesterol, poorly controlled diabetes, and increased levels of homocysteine **[12].** The risk factors are also linked to vascular dementia and women may be more likely to develop the disease than men as this study registered the death of one of the female patients by a disease accompanied by kidney failure **[13].** Diabetes and high blood pressure were accompanied by Alzheimer's disease in most patients, whereas one patient passed away two years ago with severe kidney failure. Alzheimer's Patients seemed not physically weak as some have retained their strength and could use it at any time if triggered by certain emotions or find themselves

in a stressful/confusing environment.

It seems that in all cases described above the exhausted and consequent deterioration in nerve cells and their ability to transmit impulses between cells and decrease or lack of neurotransmitter in the central nervous system (CNS) and peripheral nervous system (PNS) by advancing age is the main factor of Alzheimer's disease. These changes had imposed a strong impact on the functions of various nerve cells and consequently lead to changes in memory and behavior **[14].**

Conclusion:

A few new features and behaviors were introduced by the present study i.e. patient were actively living in a certain period of their lives that has already been passed with the same interest, behavior, and mood in which they demonstrated at this period. Living alone at an older age causes a very poor diet and it is likely that meals of the patients who lived alone for a prolonged time did not contain all the essential nutritional elements.

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