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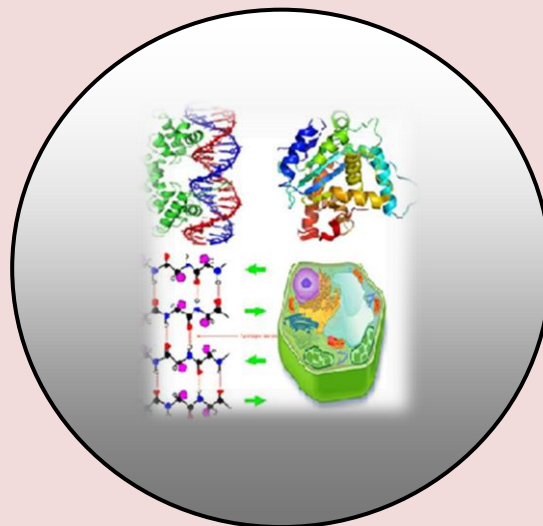
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The Unani Etiopathogenesis of Alzheimer Disease

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ABSTRACT

Alzheimer's disease is a neurological disorder. It's a gradual condition that starts with mild memory loss and progresses to the loss of ability to converse. It can have a significant impact on a person's capacity to carry out daily tasks. One of the major causes of dementia being Alzheimer's. In Unani system of medicine, there is no direct description of any such disease but it can be understood under the heading of Nisyan (dementia) or fasade zehen. As many ancient Unani physicians have discussed the symptoms of dementia under the heading of Nisyan.

Keywords: *Alzheimer's disease, Unani, Nisyan, Dementia and Phlegm.*

INTRODUCTION

Alzheimer's disease is the most common form of dementia. AD is a progressive brain disease classified as early onset (occur in between 30s and 60s) and late onset (mid 60s) (Shah, 2007).

According to the health research, the number of persons living with dementia is increasing: More than 55 million individuals (8.1 percent of women and 5.4 percent of men over 65 years) are estimated to have dementia, according to the WHO report of September 2021. By 2030, this number is expected to climb to 78 million, and by 2050, to 139 million (Ranjan et al., 2021). The major cause due to which Alzheimer disease has become a challenge to healthcare workers is its poorly understood etiopathogenesis. If the causative factor and pathogenesis of this disease would have a clear picture then the precise management of this disease would have been achieved.

Therefore, considering the severity of the problem creating health burden worldwide, this work entitled "The Unani Etiopathogenesis of Alzheimer Disease" was started in the department of Munafeul Aza Ajmal Khan Tibbiya College AMU with keeping following objectives in mind.

AIMS AND OBJECTIVE

1. To update our knowledge of dementia (Nisyan) as described in the ancient unani manuscripts.
2. To review predisposing factors and pathological changes occurring in Alzheimer's disease as described in the modern medicine.
3. To prepare an updated interpretation of etiopathogenesis of Alzheimer disease in unani medicine.

Procedure

Keeping an eye on the aims of the study this work was done according to the following procedure

1. To explore various unani manuscripts for the description of Nisyan, its causes and pathogenesis.
2. To review various books and e-resources available online and offline on the etiopathogenesis of Alzheimer disease in modern medicine.
3. The information does gather in the previous steps 1 and 2 was recorded, systematically arranged and critically analyzed to reach to a conclusion.

The Unani Etiopathogenesis of Alzheimer Disease

This disease is not referred to as Alzheimer's disease in Unani Classics. However, the indications and symptoms described in fasad-e-Zikr and Nisyan share a lot of parallels. Dementia under the heading of Nisyan, as Zarar al-Quwa, Al-Salas of Quwa nafsaniya (i.e. impairment of three mental faculties).

Quwwat-e-Hafiza/Zakira, Quwwat-i Fikr, Quwwat-i Takhayyul

- Fasad-e -Zikr (disturbance in memory)
- Fasad-e Fikr (disturbance in cognition) and
- Fasad-e Takhayyul (disturbance in imagination) and Nisyan/Humuq.

Memory impairment/loss characterizes both Fasad-e-zikr and Nisyan disorders. Butlan-e-Takallum (speaking impairment), Butlan-e-Tahreer (writing impairment), and Fasad-e-Fikr (impaired thinking) are the indications and symptoms of Nisyan recorded in Unani texts, and they steadily increase with time. Other signs and symptoms include inability to articulate dreams, headaches, giddiness, fluid flow from the mouth and nose, extreme tiredness, and speech difficulties (Iqbal et al., 2012).

Asbab

According to unani physician "Ibne Sina" Asbab of any marz (disease) can be classified into 4 major categories (Aijaz et al., 2013).

1. Asbabe Souriya
2. Asbabe Madiya
3. Asbabe Failiya
4. Asbabe Tamamiya

Asbabe Souriya- The causes that are related to Mizaj, Quwa and Tarkeeb comes under this head.

1) Mizaj

'Loss/derangement in memory results from Sue Mizaj Barid Sada (an abnormal cold temperament that is not associated with the substance or matter) or Sue-e-Mizaj Barid Maddi (an abnormal cold temperament that is associated with the substance or matter) of the anterior or posterior part of the brain,' according to unani tabeeb Ali Abbas ibne Majusi in Kamilussan (Majoosi, 2005).

'Types of memory loss are various, which occur from an excess of Yabusat (dryness), but frequently memory loss results from an excess of Ratubat (wetness),' Razi said, quoting Ibn-e-Rabn Tabri (770-850 AD) (Razi, 1955).

In his work (Kitab-al Fakhir) Zakariya Razi continues, the condition of the mind is like as molten wax that refuses to stamp. Butlan-e Zikr, a memory-damaging disorder, is caused by excessive dryness in some persons. The brain hardens into a waxy material that cannot be imprinted with a stamp (Kitab-al Fakhir fittib).

2) Quwa

Nisyan (dementia) is a sickness caused by the loss or impairment of Quwwat-e-Zikr, but it can also be caused by the loss or impairment of Quwwat-e-Takhayyul and Quwwat-e-Fikr. Kharbiye-e-zehen is a condition in which these three Quwwat (power) are impaired. The loss of function is caused by the degradation of this Quwa'h (power). The combined impairment of Quwwat-e-Zikr and Quwwat-e-Fikr is known as Humuq or Raoonat (in which cognitive impairments begin to interfere with everyday tasks) and affects the elderly (Iqbal et al., 2012).

3) Tarkeeb

Abu-Bakr Muhammad Bin Zakariya Razi (850-925 AD), in his book Al-Hawi (Vol. I, page 87) states:

Sometimes the volume of brain is reduced in older 'people who affects the cognitive function of the brain' (Razi, 1955).

This implies that when the physical status of the brain gets altered, it also alters the brains function. Reduced capacity leads to decrease brain function. In modern medicine it is the formation of tau tangles inside the neuron as well as the amyloid plaques that lead to alzheimers disease. There is destruction to the cytoskeleton structure due to intracellular deposition of masses of filament causing neuronal cell death leading to dementia (Vasudeva and Mishra).

Asbab-e-madiya– These include the arkan, arwah, aza and akhlat

- Arkan- According to unani concept, Alzheimer's can be due to excessive Barodat and ratubat leading to sue mizaj baarid ratat (sada or maddi) that can be assumed as imbalance in kafiya of rukne maa
- Arwah- As sue mizaj baarid affects the consistency of Ruh- e-nafsani. Consequently, resulting in sue mizaj baarid and ghaleez of the ruh, leading to its lesser infusion into the brain. Thus, the afaal (functions) of Azu-e-Raees brain get affected (Rehman, 1994).
- Aza- The organ that is related to Alzheimer's is the brain, it gets affected and nerves related to azae raees (brain) also get affected.

- Akhlat- Abul Hasan Ali Bin Raban Tabri in Firdaus-ul-Hikmat narrates that in dementia (Nisyan) there is accumulation of viscid phlegm and moistness in the brain. Sometime Nisyan is produced due to excess of dryness (yabusat) because due to excessive dryness brain has no memorizing capacity (Al-Tabri, 2022).

Although the cause of Alzheimer's disease is unknown, Unani scholars relates that it can be caused by les dar balgham (viscid phlegm) and ratubat (fluid) in the brain, or in other words, by sue mizaj barid yabis or sue mizaj barid rataab, which gives a clear picture of the disease's development in old age. There is a decrease in the production of the neurotransmitter acetylcholine in Alzheimer's disease, which produces depression. The phlegmatic humor is also stimulated by depression (Iqbal Nafis, 2012).

Asbabe Failiya- They can be divided as Asbabe Sitta Zaroriya and Ghair Zaroriya

1) Asbabe Sitta Zaroriya

a) Hawa

Quality of air has an impact on the health of the brain. There is relationship between the air pollution and dementia thus leading to Alzheimer's disease. A study provides proof that long- term exposure to PM2.5 is linked to an increased risk of dementia from any cause, AD, and Vascular Dementia. These findings contribute to the mounting data underscoring the need to assess about exposure to pollutants that may be a modifiable risk factor for the major forms of dementia in older persons (Mortamias, 2021).

b) Makool-o-Mashroob

Abalan was one of the first researchers to suggest that malnutrition may be a risk factor for Alzheimer's disease. In Alzheimer's disease, a study identified a 'protein-calorie malnutrition syndrome,' which could lead to chronic calcium/magnesium deficit. Furthermore, a notable deficit of vitamins E, A, D, and K has been detected in plasma in Alzheimer's patients, suggesting that frequent supplementation could improve cognition and minimise A β deposition (Risk factors for Alzheimers Disease (Richard, 2019).

c) Harkat-o-sukoon-e-badni

Physical activity has also been recommended as a way to transform metabolism, brain functions, and protect cognition if appropriate structured exercise program can be created that are targeted to the individual, are of adequate intensity and duration, and include a variety of components. Increased cognitive activity throughout life may also lessen the incidence of Alzheimer's disease (Jonaitis et al., 2013, Solas et al., 2013).

d) Harkat-o-sukoon-e-nafsani

Early life stress has also been implicated as a risk factor for cognitive impairment later in life, with evidence that stress contributes to amyloid pathology in early stressed mice (Hoeijmakers et al., 2017).

As well as in unani system of medicine there is description of mizaj according to the age of a person and during sinne shehkhokhat (old Age) the temperament becomes cold and dry which further contributes to sue mizaj baarid leading to dementia.

e) Ehtebaas-o-Istaфраagh

For a range of reasons, Alzheimer's disease can cause both constipation and bowel incontinence. Constipation may result from eating an unbalanced diet, not drinking enough water or food, or failing to detect the signals of a bowel movement, which causes bowel incontinence and the soiling of clothing. It's crucial to keep track of the medications the individual is taking and any potential side effects like constipation or diarrhea because medication might cause both. Bladder incontinence can happen in people with Alzheimer's because of mobility problems, prostate issues, medication side effects, or the inability to quickly undress, unable to recognize the urge to urinate (<https://alzheimersdisease.net/bowel-bladder-complications> cited on 23-6-2022).

f) Naum-o-yaqza

Sleep-wake disturbances may contribute to oxidative stress, inflammation, and tau pathology as well as an increase in A β generation and a decrease in A β clearance. On the other hand, it has been shown that sleep-wake disturbances are associated with the ApoE4 allele, a risk gene for AD. Additionally, acetylcholine, glutamate, serotonin, melatonin, and orexins, as well as their receptors, may have a role in the development of AD and sleep-wake disturbances (Ying Sun et al., 2022).

Asbab-e-sitta Ghair Zaroriya

1. Age many epidemiological studies concur that age, along with gender, race, and social status, is one of the most important risk factors for cognitive decline and Alzheimer's disease. With increasing age, the prevalence of Alzheimer's disease rises to an estimated 19 percent in those aged 75 to 84, and to 30-35 percent, perhaps up to 50 percent in people aged 85 and up. As a result, Alzheimer's disease could be viewed as an accelerated type of normal ageing. As well as in unani system of medicine there is description of mizaj according to the age of a person and during sinne shehkhokhat (old Age) the temperament becomes cold and dry which further contributes to sue mizaj baarid leading to dementia.
2. Gender- Females are more affected to AD then males. According to a study about two third patients of late onset Alzheimer's disease, were female. And 60% of them were post-menopausal. Gonadal steroids 17 β -estradiol in particular, exert a neuroprotective effect by shielding females' brains from disease development (Rehman et al., 2019).
3. Gene- There was consistent evidence that first-degree relatives of Alzheimer's patients had a higher chance of dementia themselves. In Alzheimer's disease, risk factors that alter APP metabolism have received a lot of attention. For example, vast numbers of genes with a functional impact on APP have been reported in genome-wide association studies (GWAS), with at least 832 genes having the property of moderating APP metabolism, eight of which are found within known AD susceptibility regions (Mortamias et al., 2011).
4. Geographical Location- Despite lower prevalence, hazard of AD and Related Disorder diagnostic incidence was higher in rural than in urban regions. Residents of metropolitan areas lived longer than those in rural and micropolitan counties among those who were diagnosed with ADRD in 2008. According to these findings, dementia may not be properly recognized in older people living in rural areas or may be detected at an advanced stage (Rahman et al., 2021).

Asbabe Tamamiya- it is evident that Alzheimer disease is progressive, nuksan, taghayyur, and butlan of af'aal-e- nafsaniya of the individual.

DISCUSSION

There is emerging incidence of Alzheimer's disease. Unani physicians have broadly described AD along with other psychopathy viz nisyan. Its etiopathogenesis lie in posterior part of the brain because of the sue mizaj baarid (sada, maddi). As brain is Azu-e-Raees of Quwwat-e-Nafsaniya it affects all the af'aal related to this quwwat including cognition, memory, sleep etc.

RESULT AND CONCLUSIONS

From the above discussion and critical analysis, it can be concluded that the Alzheimer disease is a marz-e- murakkab of brain in which sue-mizaj, sue-tarkeeb, tafarukke-ittehaal occur simultaneously. As per Unani System of Medicine the probable cause if AD is sue mizaj baarid (sada, maddi), impairment of Quwwate zikr leading to Kharabiye Zehen.

Mahiyatul Marz of AD can be understood as various gross and microscopic changes inside the brain, it includes Tasdeed-e-manafiz-e-Ruh-e- Nafsaniya in the brain due to tau protein or plaque formation. Sue-tarkeeb of the brain resulting in amyloid plaque formation and tau tangles formation and shrinkage of brain volume.

Tafarukke-ittehaal of the brain in the form of demyelination. Over time, myelin damage may contribute to synaptic dysfunction and cognitive decline. Including the quality of air that affect the brain health, balanced diet, exercise, age, gender, genetic makeup etc. have a role to play in etiopathogenesis of AD.

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