

Basic Concept and Role of Memory Enhancer (*Muqawwi-E-Hafiza*) Unani Drugs in the Management of Alzheimer's Disease (*Nisyaan-E-Shekhukhi*): A Review

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Abstract

Alzheimer's disease is a neurological disorder in which the death of brain cells causes memory loss and cognitive decline, defined as a dementing illness in which anterograde amnesia is a dominant symptom and is the most common cause of Dementia in the elderly. There is no direct mention of this condition in classical Greek literature, but Alzheimer's disease is almost always associated with forgetfulness or fasaad-e-takhayy'ul. Although the etiology is not very clear but Unani scholars have mentioned that this is due to viscid phlegm (Balghame Ghaleez) and excess moistness (rutubat) in the brain; or in other words, because of it sue mizajbaridratah or sue mizajuqawwiyaat, Moaddilaat, Munish-e-Haraarat Ghareeziyah works to increase memory.

Keywords: Alzheimer's disease, phlegmatic humour, dementia, Nisyaneshekhukhi, fasaad-e-takhayy'ul

INTRODUCTION

Alzheimer disease affects the brain, causing memory problems and eventually severe problems with mental function. It gets worse over time, patients of Alzheimer disease have gradual memory loss, as well as loss of judgment, trouble in concentrating, loss of language skills, inability to do

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everyday things, difficulty in communication, confusion, frustration, as well as personality and behaviour changes, may also develop behavioural and psychological symptoms such as depression, aggression and wandering, and a decline in the ability to learn new tasks. In advanced stages, people with Alzheimer's disease can lead to loss of all the memory and mental abilities. Alzheimer's disease is the most common form of dementia [1]. Alzheimer's is caused by the death of brain cells. It is a neurological disease, which means that the developmental death of brain cells occurs over time. With Alzheimer's, the total size of the brain is lost, and the nerve cells in the tissue gradually decrease and connections [2]. Dementia (*Nisyan, Framoshi*) is the name given to the loss of function of the Faculty of Memory (*Quwwat-e-Hafiza*) and disability in faculty of thought (*Quwwat-e-fikr*), as well as faculty of imagination (*Quwwat-e-takhayyul*). Impairment of these powers means a decrease in brain functions [3]. Faculty of memory (*Quwwat-e-Hafiza*): It retains conclusions of

conception. This faculty of the brain preserves the meaning of things, i.e., thinking in memory for minutes, weeks, and years and then a physical reaction at a later time or date may help [4].

According to Jeelani who says in his book *Makhzan-e-Hikmat* that it is dementia (*Ahmaqpan*) and it is defined as a disease that causes minor changes in conscience, consciousness and memory. Memory is weak or exhausted. There are anterograde amnesia and no interest in recent and future activities rather than free from care or thoughtless and ignorant. In advance stage of this disease, impairment in power of memory and patient behave like a child [5]. Tabri in *Firdaus ul Hikmat* narrates that in dementia (*Nisyan*) there is accumulation of viscid phlegm and moistness in the brain. Sometimes, *Nisyan* is caused by being too dry (*yabusat*) because the brain does not have the ability to remember because it is too dry. For a while, the whole body gets cold (*barid*) [6].

AETIOLOGY

The cause of Alzheimer's disease (AD) is unknown. Increase in free radical formation and failure of antioxidant defenses may contribute to neuronal degeneration. Superoxide dismutase (SOD), the free radical defense enzyme is reduced by some 25% in AD frontal cortex and hippocampi. AD is occasionally familial. Genetic studies have shown linkage between familial (presenile) AD (FAD) and loci on chromosome I (presenilin, PS1 gene), chromosome 14 (presenilin, PS2 gene) and chromosome 21 (amyloid -protein precursor, APP gene [7]. One of the main toxic elements associated with Alzheimer's disease is aluminium. In addition to these, some nutritional and mineral deficiency are also responsible for this disease, e.g., deficiency of water soluble vitamin (Vit B & C) and minerals like boron, selenium, zinc, magnesium etc. Untreated hypertension, high cholesterol, heart disease, diabetes or depressions are also responsible for this disease.

Although the aetiology is unknown but Unani scholars have suggested that it is caused by *laisdar balgum* (voiced mucus) and moisture in the brain or in other words because of *sue mizajbaridyabis* else *sue mizajbaridratat* which gives a clear indication of the presence of disease in old age. Alzheimer's disease causes a decrease in the production of the neurotransmitter acetylcholine, which causes depression. Apart from chemical causes, some psychosocial factors, i.e., stressful life events, death in close relation, financial loss, loss of loved objects, divorce are also responsible for depression. Thus excessive depression is harmful to the brain, and can lead to marked weakness of many of the body's faculties, lack of vitality and energy, and to a marked lack of enthusiasm. Depression stimulates the phlegmatic humour too. In addition to these, they have also described the etiology of *fasad-e-zikr*, *fasad-e-fikr* and *fasad-e-takhayul*.

Fasad-e-Zikr

- *Burudatwaratubat*: As *yabusatmotadil* helps in retention and it is disturbed by excess *rutubat*.
- *Burudatwayabusat*: Excess *yabusat* causes *salabat* (sclerosis) preventing impressions of sensory perceptions in brain. It is less common [8].

Fasad-e-Fikr

- *Burudatwaratubat*: As its *Rooh* becomes *Kaseef* and *Ghaleez* and cannot move from *ausatdimagh* (mid brain) to *muakhhardimagh* (posterior brain) and backwards because of absence of *Hararat* (energy).
- *Burudatwayabusat* in the mid brain.
- *Burudat* only in the mid brain.
- *Hararat* (energy)
- *Tashvish-e-Rooh* [8].

Fasad-e-Takhayul

- *Yabusat*.
- *Hararatsada*.
- *Safra* [8].

CLINICAL FEATURES

Loss of recent memory with a complaint of forgetfulness is the most common presenting symptom. Loss of interest in life and personality change, sometimes with antisocial and disinhibited behavior, are also common early symptoms. Dysphasia, dyslexia, dysgraphia and dyscalculia are sometimes particularly marked. Dyspraxic symptoms, such as topographagnosia (inability to find one's way about in familiar surroundings) and dressing apraxia, are frequent. Loss of bladder and bowel sphincter control may be an early or late feature. Sleep disturbance is common [9].

Eminent scholar Jeelani in *Makhzan-e-hikmat* described it as *Ahmaq pan* or *hamaq-e-balahat* (Dementia) and defined it as in this disease there are slight changes in intelligence, sanity and memory etc.; the power of memory is weaken or vanished. There are anterograde amnesia and no interest in recent or future activities rather than become free from care or thoughtless and ignorant. As the disease advances, there is weakness or impairment of power of memory and patient behaves like a child [10]. Abul Hasan in *Firdausul-hikmat* narrates that in *Nisyan* there is accumulation of viscid phlegm and fluid in the brain. Sometimes *Nisyan* is produced due to excess of *Yabusat* (dryness) because due to excessive dryness, brain has no memorizing capacity. Sometimes whole body becomes cold; then disease of *Nisyan* is produced. The power of memory and thinking weakens, when *Nisyan* occurs due to excessive fluid in brain [6].

DIAGNOSIS

For Alzheimer disease there is no special test. A true diagnosis of this disease can be made only after a person dies and an autopsy is done on the brain. However, Alzheimer disease usually has a collection of symptoms. According to the Unani physician, the diagnosis of disease is based on signs and symptoms and the assessment of *mizaj*.

Physicians diagnosed that impairment occurs in the Faculty of memory (*Hafiza/zikr*) and the site of this Faculty is the posterior ventricle of the brain, on the basis of above symptoms. Thus the pathological changes in the posterior ventricle of the brain we can diagnose. The patient feels difficulty in looking upon common words or objects and inability to plan complex or sequential activities. This is the impairment of Faculty of thought (*quwwat-e-fikr*) [3].

In Unani medicine, *mizaj* plays a key role in preventive, therapeutics and lifestyle recommendations. Therefore, for maintaining health of an individual and avoidance of disease, it is necessary to assess the body temperament (*Mizaj*) [11]. If a patient complaints of excessive sleep, headache, secretion from nose, mouth and eyes, forgetfulness of past memory rather than the present along with variable pulse and crude whitish urine then it is due to coldness and fluidity (*Barudatwaratubat*). If a patient complaints of less sleep, dryness of mouth and nostril, memorizing capacity of past but forgets recent events, pulse slow and rigid and urine whitish and clear the it indicates the disease due to cold and dry (*Barudatwayabusat*) [3].

TREATMENT

There is no treatment for Alzheimer disease, but in some people, medicines can help slow the progression of the disease. Herbs and supplements, and lifestyle adjustments, may also play an important role to reduce the risk or improve quality of life. As the primary cause of Alzheimer's disease is the accumulation or production of excess quantity of abnormal phlegm in the brain, thus eminent Unani scholars are of the opinion that its treatment should be started with *Tanqiyah-e-dimagh* (removal of deranged material from the brain) through the means of *Munziz* and *Mushil*. Besides eradication of diseased matter, tissue metabolism and their faculties may also be strengthened which include *Muqawwiyaat*, *Muslihat*, *Moaddilaat*, *Munish-e-Haraarat Ghareeziyah* which act as memory enhancers.

The following are the list of herbs used in memory enhancement in Unani medicine. These drugs are mainly those which clear the beta-amyloid plaques, Acetyl cholinesterase inhibitors, anti-inflammatory, and antioxidants.

UNANI MEDICINAL HERBS FOR MEMORY ENHANCEMENT [12–16]**Akhrot (*Juglans regia*)****Active Constituents**

Proteins, Linolic acid (omega 6 fatty acid), Alpha linoleic acid (omega 3 fatty acid), Vit-E, Vit B6 (Figure 1).



Figure 1. Akhrot (*Juglans regia*) [17].

Uses

Strengthening the vital organs, nourishment to the nervous system, reducing oxidative stress, it may be able to relieve in insomnia, depression, and compulsive behaviour.

Asgand (*Withania somnifera*)**Active Constituents**

Sitosterols and Withaferin-A (Figure 2).



Figure 2. Asgand (*Withania somnifera*) [18].

Uses

Muqawwiehafiza (memory enhancing), *Muqawwie bah* (aphrodisiac), *Mohallil-e-warm* (anti-inflammatory), eliminate the viscid phlegm and black bile.

Barhami Booti (*Cantela Asiatica*)**Active Constituents**

Triterpenes saponins, flavonoids and selenium (Figure 3).

Uses

Muqaww-e-dimaghwahafiza (Brain and memory tonic), *Muqawwi-e-azaeraisa* (tonic for vital organs).

Kundur (*Boswelliaserrata*)**Active Constituents**

Boswellic acid, Triterpene acid and Beta-boswellic acid are the major constituents (Figure 4).



Figure 3. Barhami booti (Cantela Asiatica) [19].



Figure 4. Kundur (Boswelliaserrata) [20].

Uses

Memory enhancer, Eliminate excess phlegm, Improve intelligence and mind, Anti Inflammatory.

CONCLUSION

The Unani physicians were well aware of the basic and fundamental concept of Alzheimer's disease. They also explained the symptoms which are quite similar to Alzheimer disease and causes, complications and the treatment of this disease. In the Unani system of Medicine, there is a special way of treatment of Alzheimer's. In to the national and international healthcare system there is a strict need for mainstreaming Unani medicine.

CONFLICT OF INTREST

None

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