



CONCEPTS OF MEMORY (QUWATE HAAFIZA) AND DEMENTIA IN UNANI SYSTEM OF MEDICINE (A REVIEW)

Unani Medicine

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ABSTRACT

Understanding of memory and its dysfunction like dementia is fascinated scholar and physicians of last many centuries by one of oldest system of medicine like Unani System of Medicine (USM) have been vastly debated. Alzheimer's disease (AD) like condition is a devastating neurodegenerative disease, the most common among the dementing illnesses. The goal of present article is to review concepts memory (Quwate Hafiza) in USM and its patho-physiology in ancient holistic point of view and relevance in present understandings of memory and its disorders.

KEYWORDS

Memory, Alzheimer's Disease, Unani System of Medicine

INTRODUCTION

Physicians have described that Quwa (faculties) are interlinked with Afaal (function) of any system of the body. Primary source of any function is quwa (faculties). Performance of function without faculty is not possible.¹ Since quwa provide the basis for different functions of the body, therefore their existence is evident through different functions. As each function requires its own quwat, hence it is customary to treat them together.^{1,2}

Basic assumption of Unani is that three major Quwa are found within human body viz. quwate nafsaniya (Psychic faculty), quwate haivaniya (Vital faculty) and quwate tabiyya (Natural faculty). These quwa are natural and specialized powers which are bestowed to a living body for performance of specific functions. Quwate tabiyya (Natural faculty) is concerned with taghzia (nutrition), namu (growth) and tawleed (reproduction); and jigar (liver) is considered uzwe raees (epicenter) of this quwat. Quwate haivaniya is concerned with tadbeer of rooh, which brings life to the part it supplies. Qalb (heart) is uzwe raees (epicenter) of this faculty. Quwate nafsaniya is concerned with sensory and motor functions. Though sensory and motor functions are evident throughout the body, but its control lies in dimagh (brain).³

According to the physicians Quwate haivaniya is the power which enables organs to accept sensory and motor activities and perform the various function of life. Emotional movements of fear and anger are also attributed to this faculty because the movement of expansion and contraction of vital force which accompany the emotion are caused by this faculty. Ibn Sina further elaborate that just like organ and their parts are formed by the heavier portion of the humours similarly Rooh (vital force) is formed by akhlat latifa (lighter and vapour portion of the humours, Galen terms it the breath and Avicenna terms it material force); it is carried in blood vessels and is purified and cooled by the air via lungs and heart.⁴

Physicians believe that all faculties have their own uzwe raees (epicenter). But philosophers like Aristotle stated that when mabda awal or nafs aula (primordial factor) acts on the vital force it leads to emergence of all the faculties. The various function of these faculties, however do not appear all at once. This is also what physicians hold with regards to the vital force of the nervous faculty which does not provide sensation to brain until it goes to sensory organs such as the crystalline lens, tongue etc. Thus when a part of the vital force reaches the ventricles of the brain it acquires such a mizaj that it begins to prominently function as the faculty which had been already there in a potential form.^{2,4,5,6} Similarly Ibn Rushd (Averroes) described that though formation and function of the quwate nafsaniya baatini (Abstract psychic faculty) is related with ventricles but originally they are from qalb (heart). Because these faculties perform their function with the help of hararate gharizyeh (innate heat) and this innate heat reaches to these quwa with specific manner.¹⁴ Physicians also described that every function has its own separate spirit and not a common spirit is taken as the determinant of all faculties. The primary formation of vital force leads to the simultaneous emergence of vital faculty as its end

results or perfection, but according to physicians the appearance of this faculty does not necessarily lead to the differentiation of other faculties unless the vital force acquires a new temperament appropriate to each of the other faculties. Vital faculty is also a center for expansion and contraction of vital force.⁴

The organs in which quwate nafsaniya is found are known as azaae nafsaniya which includes brain, spinal cord, nerves, and other sensory and motor organs. According to Ibn Sina Quwate nafsaniya (Psychic faculty) has two main subdivisions viz. quwae nafsaniya baatini (Abstract psychic/mental faculty) and quwae nafsaniya khariji (Concurrent psychic/mental faculty). Quwae nafsaniya baatini is also known as quwae siyasiya⁷ or quwae mudabbira (intellectual faculties).¹ The Quwae nafsaniya khariji operates with five senses which according to some are eight. The five senses are vision, hearing, smell, taste and touch. When it considered eight then the sensation of touch is subdivided into four (pain, temperature, smoothness or roughness and softness or hardness).⁸

According to Ibn Sina and his followers, who accepted the views of ancient philosophers instead of the physicians. He described that Quwae nafsaniya baatini have five subdivisions.

1. Hisse mushtarak, (faculty of Integration)
2. Quwate Khayal (faculty of imagination)
3. Quwate Wahma (faculty of apprehension)
4. Quwate Haafiza (faculty of memory)
5. Quwate Mutasarrifa (faculty of modification)

According to ancient philosophers hisse mushtarak (faculty of Integration) is single faculty but philosophers believe that it has two verities; the first is perception proper which receives all sensations composes them into percepts and enables proper sensory appreciation and second one is ideation which comes into action after perception and is concerned with the storage and retention of percepts after their disappearance.⁵⁵ Hence this mental faculty collectively perceives juzae sowr (particular forms of sensation) which have been perceived by the five quwae mudrika zahira (external perceptive faculties) with their respective external sense organs. Thus the ancient philosophers believed that besides the existence of separate internal sensory faculties located in the primary sensory areas and secondary sensory areas of the brain for each external perceptive (sensory) faculties, it analyses and integrates all sensory signals at one place and then recognizes their particular forms.^{1,7} This faculty is located in anterior ventricle of the brain.

Quwate khayal (faculty of imagination) preserves the forms of the things perceived by hisse mushtarak. This is another type of memory which saves sensory impressions of same or similar type. This is the way we recognize a person whom we know.¹ This faculty is centered in mid ventricle of brain.⁷

Quwate wahma (faculty of apprehension) is the faculty which perceives meaning of particular forms. This is performed by the

process of analysis and integration and sub-served in association areas of brain. When this faculty is lost the person can read the printed word but he is unable to recognize the meanings of thought what is conveyed or he can hear perfectly and can recognize different word but he will be unable to arrange these words into coherent thought.^{1,7}

Quwate hafiza (faculty of memory) preserves the meanings of things especially thoughts in the memory loci for minutes, week or years and then helps the bodily reaction at some future dates.^{1,7} This faculty is store house of intuitive ideas and not for the percepts stored ideation. It is located in posterior ventricle of brain and their disturbance results from temperamental or structural abnormality of posterior brain. The fifth and last faculty is quwate mutasarrifa (faculty of modification) which modifies various sensory informations by many ways i.e. (1) by processing (2) by splitting (3) by integrating (4) by matching etc. after the processing of the various information this faculty focuses its attention on the specific type of information before sending to proper motor area and splitting it into the different qualities of each set of information takes place and are transmitted to other areas. This faculty compares new information with old informations in its memory loci and lastly it determines the pattern of stimulation and function. This faculty also helps to hisse mushtarak and quwate wahma for the performance of their function by analyzing, splitting and integration of information. Seat of this faculty lies in the entire brain. This faculty is also known as quwate mufakkira because it is served by other faculty and acquires modification of fikr (thoughts). It is also known as quwate mutakhayela (faculty of imagination) because it serves other faculty by abstracting thought, ideas and imaginations and modifies the forms and meanings by the process of splitting and integration.^{1,2,3}

Hence the functions of intellectual faculty are performed with the interrelationship and collective functioning of all the branches of quwate nafsaniya located into the various areas of the brain therefore it can be summarized as follows:

1. Processing, splitting and integration of sensory information with respect to their forms and meaning and comparison of information with the old information preserved in the memory loci.
2. Perception of the forms of things is performed by the hisse mushtarak and it is saved and memorized by quwate khayal (faculty of imagination).
3. Understanding the meaning of things by analysis (splitting and integration) performed by quwate wahma (faculty of apprehension or Intuition) while storage and memorization is performed by the quwate hafiza (faculty of memory).
4. Modification of various sensory informations is conducted by quwate mutasarrifa (faculty of modification) while abstracting the ideas, imagination and thoughts are performed by the quwate mufakkira and quwate mutakhayela (faculty of thought and imagination)
5. The act of future planning, weighing and judging of the sensory information, solution of mathematical, legal or philosophical problems etc are controlled by the collective function of all above faculties and collectively known as quwate aql (faculty of wisdom).

Physicians have classified the quwae nafsaniya batini in three categories in place of five faculties and explained the internal cognitive dysfunction according to these three faculties. Ali Ibn Abbas and Ibn Rushd classified it as Quwate takhayyul or mutkhayela (faculty of thought), Quwate fikr or mufakkira (faculty of thinking) and quwate zikr or mutazakkira and hafiza (memory and recall).⁵⁸ These particular respective quwwas allocated in three parts of brain e.g. Muqaddam Dimagh (anterior brain) Ausat Dimagh (mid brain) and Moakhkhar Dimagh (posterior brain) respectively. The anterior brain particularly both anterior ventricles has the quwate takhayyul (faculty of thought), mid brain mainly middle ventricle has quwate fikr (faculty of thinking) and posterior brain or third ventricle has quwate zikr and hafiza (memory and recall).^{7,8}

Physicians have described that quwate takhayyul or mutkhayela saves the things which is disappeared and represent the stimuli in front of quwate fikr or mufakkira for the correct decision. Quwate mufakkira plays key role in understanding the unknown things with the help of information provided by quwate takhayyul and if information is worthy then it is saved by the memory. This faculty is found only in humans.^{1,7,8}

Memory preserves and imprints the information gathered by thinking and observation in their particular location and when information is

required it recalls the particular information.^{1,3} The main difference between quwate takhayyul and quwate hafiza is that faculty of thought preserves the image of the event and memory saves the meaning of image it indicate that quwate hafiza is far subtle than quwate takhayyul.^{9,11} Ibn Sina further stated the third faculty (Quwate Mutazakkira) which is described by the Unani physicians is in fact the fourth and fifth faculty. These are Quwate Haafiza (Power of retention) and Quwate Mutazakkira (power of recalling). These quwa are treasury of abstract information for Wahm (intuition), just like treasury of concurrent information is khayal (faculty of imagination- a type of memory) which reaches to Hisse mushtarak. Memory is located in posterior ventricle of brain. (figure 1)

Ibn Rushd described that memory is created by a process of continuous abstraction or "spiritualization." The form of an external object is sensed at first with its many "rinds" or husk of corporeality (qushur), for which read particularity. This faculty actually serves as a bridge between imagination and intellect, dealing with particular images as it does, but selecting out the most distinctive aspect of each percept. (It brings the purification process to a close, memory receiving an essentialized notion or intention of a particular percept). Memory stores these fragmented essentialized images and is able to remember them. Tazakkur (Recollection) rejoins them in the cogitative faculty with full images that flesh out the corporeal features of the sought object. Good memory is said to depend on dryness in the front and back of the brain, poor memory due to moisture that prevents images and ideas from retaining their hold. The best disposition and manifestation is mostly seen in youth, because of enabling both quickness of understanding (the positive benefit of moisture) and a long term memory.¹⁰

The function of internal cognitive faculty is not only hampered by temperamental changes or due to morbid matter as Zakariya Razi stated that dryness of temperament enhances and sharpens the mental faculty. But when this particular quality increases it can also cause dysfunction of mental faculty. Further he added that basically moistness is responsible for memory dysfunction.¹¹ Muhammad Tabari stated that the nature of moisture is cold and precursor of obstruction and suppresses the innate heat and vital faculty because the mizaj of ratubat is against afaal nafsaniya. Which causes obstruction in supply of innate heat to the particular area of brain and this particular area stops working unable to take further information.¹² Unani doctrines explained that first type of Nisyaa (dementia) is produced by sue mizaj barid accompanied with phlegm in anterior lobe where the center of quwate takhayyul is located. The patients forget their short term memory but retain their long term memory. The second type of memory is dysfunction found in mid brain which is center of quwate fikr. Ratoobat ghaliza (morbid matter) and barudat causes dysfunction of this faculty. The third type of memory dysfunction appeared when ghaliz balghmi madda (morbid phlegmatic matter) and barudat hampered the faculty of memory and recollection this leads to loss of past memory and patient will disabled to retain or conceptualize any further information^{12,11,13,14} Similarly Ibn Sina also described Pathophysiology of memory dysfunction as Fasadul Zikr (Abnormality to recall memory) is like "Raunat" (state of confusion). But (the lesion) is in the back part of the brain. Because, this (Fasadul Zikr) is a decline in the functions of back part of the brain or loss of its function as whole and its primary cause, is the barudat either alone or with yabusat, in this condition the inputs will not be saved or with rutubat, it will not be saved for long what has been imprinted.^{2,15,16} Ibn Rushd futher added that brain gets influenced easily due to its barid ratab mizaj. The diseases of brain may lead to derangement of these faculties. The brain diseases are either primary due to sue mizaj dimagh (abnormal temperament of brain) itself or secondary due to involvement of its sharing organs (aazae musharika) and when faculties get affected it can cause three types of deficit in mental faculty viz. Butlaan (cessation of faculty) Nuqsaa (deficiency in faculty) and Tashweesh (improper or altered functioning of faculty).¹⁷ The halaqate zikr (cessation of memory) is of two types; first type is caused by barudat and ratubat on posterior part of brain and second type is barudat and yabusat that cease the function of memory. In this condition patient is unable to recall any kind of memory because of complete loss of power of memory due to temperamental disturbance.¹² According to Abu Marwan Ibn Zohr (Avenzoar) quwate hafiza is disturbed by barid mizaj and when it exceed compared to as normal mizaj, it can causes complete cessation of memory. The causes can be maddi (with matter) or ghair maddi (without matter) which leads dysfunction of quwae mudabbira (intellectual faculties).¹⁷

The Scholars of Unani Medicine elaborated the memory or all internal cognition is dependent upon the mizaj of brain and when mizaj disturbed by any Kaifeyat or structural damage, it leads to dysfunction of particular quwa because these condition restrict the rooh of particular organ.

Unani system of medicine has very specific approach to treat amnesia. When memory dysfunction is due to barid or ghaliz ratoobat, then first munzijat (concoctive) are given and then mushilat (purgatives) followed by moaddilat (alteratives). Principle of treatment of all three faculties is same but difference is in external application only. The drug is applied according to site of faculty e.g. in case of fasad fiqr, natool (Irrigent) should be done in mid of the brain similarly in fasad zikr the site of natool should be posterior part of the brain.¹⁶ The principle of treatment for halaqat zikr (loss of memory) is done by enema according to strength of patient and severity of disease.¹⁶ Unani physicians also mentioned both single and compound drugs for nisyen such as Pyaz dashti (Urginea scilla),¹⁸ Vaj Turki (Acorus calamus), Baladur (Semecarpus anacardium), Zanjabeel (Zingiber officinale) Filfil syah (Piper nigrum), Brahmi (Bacopa monnieri) and compound formulation such as Majoon Baladur, Majoon Vaj, Majoon Nisyen.^{18,19,20,21,22,23}

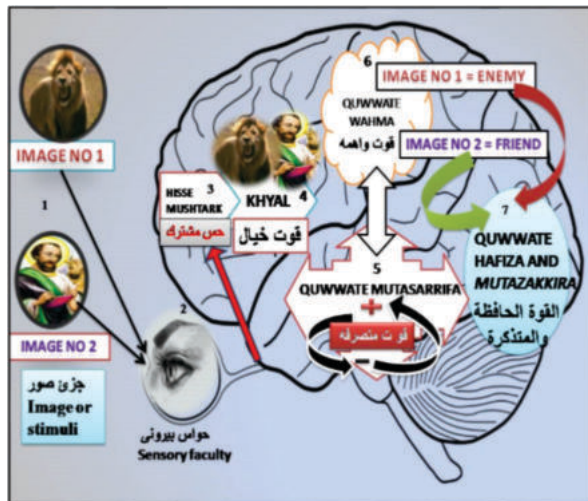


Figure No.1: Diagrammatic presentation of Quwae Nafsanīya Batīni (Abstract psychic/mental faculty) according to Unani Philosophers.

(1) Image or stimuli is present outside (2) the object and stimuli information is received by five external sensory faculties. (3) Faculty of perception analyses and integrates all sensory signals at one place and then recognizes their particular forms (4) Quwate khayal preserves the forms of the things perceived by hisse mushtarak when information is required it provide information. (5) Quwate mutasarrifa helps hisse mushtarak and quwate wahma for the performance of their function by analyzing, splitting and integrating of information (6) Quwate wahma perceives meaning of particular forms and analyzes it for action and storage e.g. it decide that image no. one is danger and two is friend (7) Meaning of these information will saved in Quwate hafiza and whenever it is required, Quwate zikr rejoins them in the cogitative faculty with full images that flesh out the corporeal features of the sought object.

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