



ISMAIL JURJANI'S DESCRIPTION OF PATHOPHYSIOLOGY OF PSYCHIATRIC DISORDERS IN ZAKHIRA KHWARIZAM SHAHI

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ABSTRACT

Background and Objective: Description and conceptual recognition of psychiatric disorders have always been a difficult task as exact pathophysiology of psychiatric disorders is still not known perfectly. In Islamic Golden Era (between 9th and 12th centuries) scholars of medicine did extensive research and documented their observations. Various classical books and encyclopaedias of that era are evident in that regard. Zakhira Khwarizam Shahi is one of them written by Ismail Jurjani also has description of diseases of the brain in it. The main aim of this paper is to highlight Ismail Jurjani's work regarding pathophysiology of psychiatric disorders.

Materials and methods: Zakhira Khwarizam Shahi was the main source of this study. Other sources were Al Qanoon Fit Tibb, various online and offline journals, proceedings etc. related to life and works of Ismail Jurjani. Relevant literature collected then analysed and explained in a comprehensive manner.

Observation and Conclusion: Jurjani gave a description of psychiatric disorder under the diseases of the brain which he classified into five types. His description of General Pathophysiology of psychiatric disorders is based on the role of abnormal black bile and abnormal psychic pneuma. After going through his work related to neuro-anatomy and disorders of the brain, his expertise in medicine can be best understood.

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INTRODUCTION

Time period from ninth to twelfth centuries is considered as Golden age of Arab Islamic civilization. At the same time when Europe was in a dark age, scholars from Islamic civilization were working extensively in every discipline including medicine. Zakariya Razi/ Rhazes (865-925 AD), Ibn Sina/Avicenna (980-1037 AD), Ali Ibn Abbas Majusi/Haly Abbas (949-982AD) and Ismail Jurjani (1042-1137 AD) were among the most influential scholars who made the significant contributions to the art of healing i.e. medicine. (Tibi S., 2006), (Usaiba IA., 1990), (AL-Qifti JA., 2012), (Zargarani A *et al.*, 2013), (Moattar F *et al.*, 2013) However, they were inspired by Hippocratic and Galenic medicine but they relied more on their own observation and thoughts and rejected teachings of Hippocrates and Galen wherever they were not convinced. Their continuous experimentation and observation result in existence of several Medical encyclopaedias of Golden Islamic Age like Al Hawi Fit Tib, Kitab al Malki, Al Qanoon Fit Tib and Zakhira Khwarizam Shahi etc.

As far as disorders of brain are concerned, Hippocrates was the first physician who considered epilepsy as a disease entity instead of some demonic possession. A great Persian physician Ibn Sina's work related to psychiatric disorder is commendable. Also, Ismail Jurjani has contributed a lot in medicine, especially in diseases of brain. The pathophysiology of disorder of brain and spinal cord described by Ismail Jurjani is in a very easy and clear way. Ismail Jurjani's expertise in psychiatric disorders can be best understood by his explanation in book Zakhira Khwarizam Shahi. Because of his expertise some scholars used to call him Bu Ali Sani (Avicenna IInd). (Jurjani AH, 2010)

Life of Ismail Jurjani

During golden age of Islamic civilization Persia, (modern day Iran) used to be native place for many great scholars from all disciplines including medicine. Ismail Jurjani was one of them. His name was Syed Ziyauddin Abu Ibrahim Ismail Ibn Hasan Ibn Mohammad Ibn Ahmed al Hussaini Al Jurjani. (Jurjani AH, 2010) Very little is known about his personal life, family background and education etc. He was born in 1042 AD in Jurjan, Iran. There are several evidences available regarding Jurjani's visit to a number of famous cities of his time like Neishapoor, Isfahan, Qum, Ray and Shiraz etc. (Tadjabksh

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H,2007) He started studying medicine in his native city, Jurjan then he moved to Neishapoor. It is believed that Jurjani learned the art of healing from Ibn Abi Sadique (who was famous as Hippocrates IInd). Probably Ibn Abi Sadique was one of the students of Ibn Sina. (Usaiba IA.,1990) Jurjani served as family physician of the royals for many years. Royals like Sultan Alauddin were very appreciative to him that is why he used to pay him a handsome salary i.e. one thousand deenar per month. Jurjani was expert of jurisprudence and Ilm-e-hadith too which he learned from Abu-Al Qasim Qushairy. (Tadjbakhsh H,2007)He spent his last days in Merv, where he died in 1137 AD at the age of 95 years. (Shoja MM *et al.*,2010)

He wrote many books on philosophy, medicine, theology and other natural sciences in Persian language. Three famous books of medicine wrote by Jurjani are Zakhira Khwarizam Shahi, Khaffi Alai and Yadgar. Khaffi Alais a pair of pocket books. It is a summary of Zakhira Khwarizam Shahi which can be read during travelling and wars etc. Content of Yadgar includes pharmaceutical science. (Vasti N., 2010)

Zakhira Khwarizam Shahi

He wrote his most famous book Zakhira Khwarizam Shahi at the age of 70 by the time he became very experienced. It is considered as oldest Persian medical encyclopedia. In this book Jurjani explored all the branches of medical science and provide deep insight into them. He dedicated this book to the prince of Khwarizam of his time, Sultan Alauddain. This book is not less than Avicenna's canon of medicine and Haly Abbas's Liber Regius. It is often said that Zakhira Khwarizam Shahi bears much resemblance with Canon of medicine in terms of its conceptual comprehension. It is a fact that he was inspired by Avicenna's work but Jurjani relied most on his own thoughts and experiences. (Vasti N., 2010)

A large part of Jurjani's findings and experimentation are dedicated to neuro-anatomy and clinical neurology. As far as neuro-anatomy is concerned he has mentioned three parts of brain i.e. forebrain, mid brain and hind brain along with 7 pairs of cranial and 30 pairs of spinal nerves. However, Avicenna has mentioned 8 pairs of cranial nerves and 8 pairs of cervical, 12 pairs of thoracic nerves, 5 pairs of lumbar. He wrote that first pair of sacral nerve joins with lumbar nerve other pairs of sacral nerves and individual members of coccygeal nerves supply rectal muscles and pubic organs. Apart from that Jurjani's novel theory of relationship between trigeminal neuralgia and arterial movements close to the nerve is quite commendable. His description of brain disorders is very clear and impressive. (Sina I, YNM)

Zakhira Khwarizam Shahi is divided into 10 parts. In the 6th part he described diseases of whole body starting from head to toe. Disorders of brain are described in initial portion of the sixth parts, which consists of five parts. First part is related to inflammatory diseases of brain and meninges that includes different types of meningitis, coma vigil, catalepsy etc. Second part consists of disorders caused by accumulation of morbid humours and bad vapours in the brain like melancholia, love sickness, insanity, insomnia, hydrocephalus etc. Third part consists of diseases caused by accumulation of viscous phlegmatic humours in ventricles and channels of brain. These are vertigo and giddiness, epilepsy and apoplexy etc. In fourth part diseases of nerves like fasciculations, Facial palsy, numbness, tremor, paralysis, convulsions are included which

occur due to accumulation of morbid matter in nerves. In fifth part different types of headache are described. (Jurjani AH, 2010)

Ismail Jurjani's description of pathophysiology of psychiatric disorders

He has given full description of diseases including their aetiology pathophysiology, sign and symptoms, diagnosis and treatment in sixth part of Zakhira Khwarizam Shahi. An important description in this section includes pathophysiology of psychiatric disorders which he has explained very well. Jurjani was well aware about importance of mental well-being. Also, the critical role played by sawdā (black bile) and rūḥ-e-nafsāni (Psychic pneuma) in maintenance of mental health. Therefore, before describing pathophysiology of psychiatric disorders, Jurjani first explained the types of sawdā (black bile) and its mechanism of production along with production, transformation and circulation of rūḥ (pneuma) in the body and brain. Further he added role of ghayrtab'irooh (abnormal pneuma) and ghayrtab'isawdā (abnormal black bile) in causation of various psychiatric disorders like malencholia, mania, insanity etc.

Jurjani described two types of khiltsawdā (black bile); ṭab'isawdā (normal black bile) and ghayrtab'isawdā (abnormal black bile). ṭab'isawdā is sediment of blood, while abnormal black bile is formed as a result of burning of ṣafra (bile) or sawdā itself.

As far as production of rūḥ (pneuma) is concerned he has considered heart as its site of production where it is produced as rūḥ-e-ḥaywāni (vital pneuma). Its production is attributed to humour and air coming from liver and lungs respectively. Once rūḥ-e-ḥaywāni is produced in heart it is supplied all over the body through blood vessels. When it reaches to the brain it gets transformed into rūḥ-e-nafsāni (nervous pneuma) by the action of digestive faculty of brain. This transformation takes place at the basal part of brain. Then it circulates in brain from basal part to fore brain, mid brain then hind brain. During its circulation rūḥ-e-nafsāni becomes more and more mature and delicate. Hence, it becomes conducive for various psychic functions.

He considered brain as a tool for nafs (psych), while rūḥ -i-nafsāni, quwā-i-nafsāni (psychic faculty) and tabi'at (physis) work under supervision of nafs. Various psychic functions like imagination, thinking, comprehension and memorization are attributed to nafs. He then highlighted the importance of mizāj (temperament) of brain as well as of pneuma in execution of psychic function. If mizāj of brain is normal then its functions are normal too. Any alteration in the mizāj of brain results in alteration in mizāj of rūḥ-i-nafsāni, as digestive faculty of brain becomes weak and brain cannot concoct the rūḥ efficiently. Now the process of transformation of rūḥ-i-ḥaywāni into rūḥ-i-nafsāni becomes disturbed. In other words brain is unable to purify rūḥ. This impure rūḥ is not conducive for psychic functions anymore, especially when it get mixed with any accumulated humour in brain then it results in disturbed and irregular (decreased, absent, altered) psychic functions. These disturbed psychic functions are manifestation of psychiatric disorder.

He also has documented the role of sawdā in causation of psychiatric disorder based on relationship of essence of rūḥ-i-nafsāni to nur (brightness/light). Being very delicate rūḥ-i-

nafsāni attracts towards nur. More the attraction of rūḥ-i-nafsāni, better the execution of psychic function. However, sawdā is being dark in colour and thick in consistency could not become a source of attraction for rūḥ-i-nafsāni. Instead, excessive and abnormal sawdā produces such alteration in rūḥ-i-nafsāni which is not conducive for execution of psychic function. On the basis of above pathophysiology, role of sawdā in causation of various psychiatric disorders like depression, phobia etc. can be understood.

He further mentioned that change in mizāj of brain may be with or without involvement of morbid matter. Whenever there is increased dryness in brain, insomnia occurs. Dominance of heat and dryness leads to disturbance in memory. Jumood (catalepsy) is caused by excessive dryness and coldness in brain, whereas excessive sleep results from dominance of moistness. Hot and dry temperament of brain results in anxiety and insomnia. When there is excessive accumulation of cold humour in ventricles and channels of brain, it results in their obstruction leading to disturbed function of brain. Accumulation of morbid matter in forebrain causes visual hallucination and delusion as well as annoying thoughts. Whereas, when morbid matter accumulates in midbrain and hind brain it results in phobia and loss of memory respectively. (Jurjani AH, 2010)

CONCLUSION

Pathophysiology of many of the Psychiatric disorders cannot be explained yet. However, in Islamic golden age physicians has explained these disorders based on philosophy of Unani system of medicine. Jurjani's description of production of rūḥ, its transformation and circulation into has clarity. Most of description of jurjani inclined towards Avicenna but his description about rūḥ-i-nafsāni is more comprehensive.

Ismail Jurjani's contribution to medicine especially his expertise in neuro-anatomy clinical neurology and psychiatry were best exemplified in his book Zakhira Khwarizam Shahi. In which he explored almost all the branches of medicine. This book alone is sufficient to recognize him as an expert of psychiatry.

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