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Conceptual analysis of ruh, its pathway and distribution

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Abstract

Unani system of medicine which is called Greco-Arab Medicine, based upon the Hippocrates's fundamental and Galen's teaching, the concept of Al-Umoor-al-Tabi'yah (Natural principle) of our body is main and basic concept upon which the Unani system of medicine is established, these natural principles or Umoor-e-Tabi'yah are seven in number as following, (1) Al-Arkan (Elements) (2) Al-Mizaj (Temperament) (3) Al-Akhlata (Humours) (4) Al-Ad'a (Organs) (5) Al-Arwah (Pneumas) (6) Al-Quwa (Faculties) (7) Al-Af'aal (Functions). In this universe there are two type of creatures, one is inanimate (which do not possess life) and second is Animate, which possesses life. And difference between both is due to Ruh (Pneuma), which is indispensable and essential component for existence of life and in absence of Ruh existence is impossible. The Concept of Ruh has always been in controversy among scholars partly because of the Dogma of the concerned teachers of the subject with current knowledge, they could not present the vital part of concept in its Right perspective and partly due to diverse Meaning of Ruh which developed misunderstanding among scientist.

Material and methodology: while this study is literary for this purpose material from classical literature, manuscripts, the Aqwal (Tales) of Unani scholars have been collected and help of published papers, international journals and modern Tibbi literature have been taken in to account and put the entire document in systemic manner.

Keywords: Arwah, Umoor-e-Tabiyah, Maddah-e-Ruh, Quwwat-e-Badan, Marakiz-wa-Masalik-e-Ruh, Circulation, Naql-o-Hamal-e-Ruh, Transportation, Diffusion

Introduction

Ruh is one of the seven Umoor-e-Tabi'yah, it is gaseous substance produced in the body with the help of Akhlata-e-Lateefa (rarefied part of Humours) and Bairuni Hawa/Hawa-e-Muheet (Atmospheric air). Ruh is responsible for production of energy, which performs all metabolic activities, provides Hararat-e-Ghariziyah to all faculties, functions of faculties performed in presence of Ruh, it is the vital source of existence of life. Ruh is not denied by any one as being the part of atmospheric air, Ruh is categorized as Ruh-e-Tabi'i (Natural Pneuma), Ruh-Haiwani (Vital Pneuma), Ruh-e-Nafsani (Psychic Pneuma), Unani scholars described Ruh, type of Ruh, Genesis and transportation of Ruh from the Atmospheric air to the cell, in this study general description of Ruh its source, production of energy by Ruh and its transportation across the body are discussed as classical literature describes as well as Tib-e-Jadeed in a comprehensive way.

Different meanings of Ruh: concept of Ruh is mentioned at various places, e.g. in religious books and medical text. In religious books Ruh is meant for soul but this definition is discarded by Abu-al-ala-Alauddin-ibn-Hazam-al-Qarshi and Nafis-bin-Awdh-al-Kirmanji, they clarified that in Tibb Ruh is not meant for this purpose^[5, 12, 15].

Literal meaning of Ruh: (1) Allama Kabiruddin with reference to Moalejat-e-Buqratiyah stated that, Ruh is Synonyms of Reeh, which means simply air or circulating air, so that many scholars use Reeh in place of Ruh, for example Reeh-e-Nafsani in place of Ruh-e-Nafsani and so on. (2) Ruh is essential substance upon which life depends. (3) Sometimes Ruh is used for substances having volatile properties, and evaporate by heat like Naushadar (Ammonium chloride) And Seemab (Hydragrym) (4) volatile part of plants also termed as Ruh (Arq) (5) Sometimes Ruh is used for Quwa (Faculties) as Rabban Tabri stated^[13, 16]. (6) Sometimes Quwwat-e-Haiwani (Vital faculty) of Qalb (Heart) is termed as Ruh-e-Haiwani. (7) Prana and Vayu described in Ayurvedic system of medicine seems to be similar the Ruh (Pneuma) or breath of life in Unani system of medicine.

(8) All Biochemical substances which give stimulus to different kind of Quwa (Faculties) for proper functioning and provide energy is called Ruh (Pneuma) (9) Some Physician think that Quwat-e-Aam (General energy) is Ruh [6, 27].

Maddah-e-Ruh (Source of Pneuma): Different Unani scholars have described Ruh in different ways, Some describe Ruh as Materialistic while others immaterialistic and they correlate Ruh with Nafs, Some scholar thought that Ruh is obtained from atmospheric air while other think it from Akhlat-e-lateefa (Rerified Humours) and Bairuni Hawa (Atmospheric air) [3]. There are two philosophical group about Ruh, according to one group Ruh is Unsur of Hawa-e-Muheet (Atmospheric air) and next group opined that Ruh (Pneuma) and Hararat-e-Ghariziyah (Innate heat) are similar, Substance of Ruh mainly depend upon Jauhar-e-Ruh which is part of Hawa-e-Muheet (Atmospheric air) and Akhlat-e-Lateefa (rerified Humour) which is the functional constituent of diet. According to Avicenna (Ibn-e-sina) and his disciples, Maddah-e-Ruh (Substance of Ruh) obtained from Jauhar-e-Ruh (Atmospheric air) and fine part of Khilt-e-Dam. Essence of Hawa-e-Mustanshak (Inhaled air) is seperated in lung's alveoli by Quwwat-e-Mumayyazah (Selective power) of Lung and absorbed in blood and become body part, hence Jauhar-e-Ruh comes into Existence.

Ruh in view of Unani Scholars

(1) According to Rabban Tabri Ruh is a rarefied vapour of fine Humours [14]. (2) Galen is the only physician who has given the correct concept of Ruh (Pneuma), he denied the concept of Nafs (Psychic) and opined that Ruh is the part of Hawa-e-Muheet (atmospheric air), which reaches the lung through inspiration and hence goes to the left atrium of heart via pulmonary vein, and from left ventricle to the whole body through Aorta, and also enters to nervous system through brain, Majusi has also the same opinion. (3) Raban Tabri Described Ruh as Nafs (Psych) and he termed Nafs-e-Haiwani and Nafs-e-Hissi in place of Ruh-e-Haiwani and ruh-e-Nafsani, according to him Nafs is Mudabbir-e-Badan. (4) According to Abu-Sahal Masihi Maddah-e-Ruh (Substance of Ruh) Is Hawa-e-Mustanshak (Inhaled air), he supports the concept of Galen that Ruh is part of Hawa-e-Muheet (Atmospheric air), Masihi opined that Maddah-e-Ruh (Substance of pneuma) is obtained from atmospheric air, atmospheric air is not actually Ruh, but it when enters into lungs, and from lung to the left ventricle where it matured and rarified, then some part of blood turns into light gaseous part, which produces Ruh. (5) Ali Ibn Abbas Majusi described Ruh and Nafs with little difference, in his view Ruh is Vehicle of Nafs, by which sensory and voluntary activities performed, he has given the example of lamp while giving the cause of death, and has compared external air needed for glowing the lamp with the external air needed for respiration and compared the oil of lamp with Akhlat-e-Lateefa (fine Humours) and Smoke of lamp is compared with Bukharat-e-Dukhaniyah (CO₂) [13]. (6) According to Ibn-e-Sina two things are included in the formation of Ruh, one is Akhlat-e-Lateefa (Fine humours) and next is Bairuni Hawa (Hawa-e-Muheet) [13], Ibn-e-sina has two opinion about Ruh, one is philosophical and second is Tibbi (medical), he do not consider Ruh as the part of Atmospheric air like Galen and Masihi, but he suggest that

Naseem which is the part of atmospheric air take part in the formation of Ruh, and this air is not Ruh actually as some scholar thinks [2, 17]. (7) Ibn-e-Rushd explains Ruh as Hot Vaporous Jism (Body) which produced in the heart and get absorbed to the whole body through arteries [4]. (8) Burhan-al-din-Nafis-bin awz-kirmanian denied the concept of Galen and put his view about Ruh, he says; Blood after getting matured in left ventricle of the heart, and after turning into light gaseous substance is called Ruh, because of this reason Ruh energize by nutrient and getting weak by starvation, he is in the opinion that Ruh is not produced by Hawa-e-Mustanshak (Inspired air) as Galen described, he further criticise the Galen and put a question that if we consider Galen at right path then in absence of nutrition while air is available in abundance Ruh should not be weaken [3, 8, 13].

Function of Ruh: (1) It produces movement in organs (2) Ruh produces Hararat-e-Ghariziyah (Calidum innatum) in the body, (3) ruh produces energy which is necessary to keep all the quwa (faculties) functioning, (4) and keeps all the A'da alive [5, 11, 12, 15].

Aqsam-e-Ruh (Types of Pneuma)

Ruh is sub divided in three types like Quwa (Faculties), because Quwa need a carrier or vehicle to perform their functions, so Ruh is named after concerned Quwa namely; Ruh-e-Tabi'i: ruh-e-Tabi'i is that ruh which found in A'da Tabi'iyah and maintain the Quwat-e-Tabi'i (Natural faculty), which concerned with growth and development of the human body and responsible for the performance of Af'aal-e-tabi'yah (Natural functions), this ruh is found specially in liver and in those A'da-e-Tabi'iyah (Natural organs) where metabolic changes take place and where evaporous particle is present, According to Rabban Tabri Ruh-e-Tabi'i is produced in kaid (Liver) from pure blood excluding all other Khilt (Humours), and it produces Quwat-e-Aam (general energy) to help Quwat-e-Tabi'i, and through venous channel distributed throughout the body, Maddah-Dam (matter of blood) from stomach and Maddah-e-Ruh (Substance of Pneuma) from Qalb (heart) reaches to Kaid (liver) where Maddah-e-Ruh get absorbed into Blood and maddah-e-ruh-e-tabi'i (Substance of natural pneuma) become Ruh-e-tabi'i, and distributed across the body through veins [1, 13, 14, 27].

Ruh-e-Haiwani (Vital Pneuma): Ruh-e-Haiwani reside in A'da Haiwaniyah (vital organs) and perform Af'aal Haiwaniyah (vital functions) whose centre is heart, Shara'in (Arteries) perform Khidmat-e-muwaddiyah for heart, and Awridah (veins) perform Khidmat-e-muhaiyyah for the heart, when Ruh enter from outside inside assisting heart and provide material for stimulation of Quwat-e-Haiwaniyah (Vital faculty) with whole body [1, 5, 10, 11, 26].

Ruh-e-Nafsani: Ruh-e-Nafsani (Psychic Pneuma) reside in A'da Nafsaniyah (Psychic organs) and help the Quwa Nafsaniyah (Psychic faculties) to perform Af'aal-e-Nafsaniyah (psychic functions), the centre of Ruh-e-Nafsani is brain, A'sab-e-muharikah (motor nerves) perform Khidmat-e-muwaddiyah of A'da-e-Nafsaniyah, and A'sab-e-Hissiyah (Sensory nerves) performs Khidmat-e-muhaiyyah of A'da Nafsaniyah, Ruh-e Nafsani is not produce in brain but it also generated in the heart and reaches every bodily part through arteries, Ruh enter the

brain through two sets of arteries namely shiryani-e-subati (carotid artery) and Shiryani-al-faqri (vertebral artery) within the cranial vault, the terminal branches of these arteries form an anastomotic circle called the circle of willis, from this circle branches arise which supply the majority of the cerebellum, in this anastomotic circle of willis ruh circulate and matured and get ready to become Ruh-e-Nafsani (Psychic Pneuma), then this Ruh reaches the ventricle of brain and majority of its part, and become Ruh-e-Nafsani which is useful for Quwat-e-Nafsani (Psychic faculty) after that through A'sab-e-Harakiyah (motor) and A'sab-e-Hissiyah (sensory nerves) and Nukha (spinal cord) this Ruh is distributed to motor and sensory organs [15, 10, 12, 14, 18, 21].

Quwwat-e-Badan and ruh

Tibb hold that all faculties of the body, either Quwat-e-Haiwani (vital faculty), Quwat-e-Nafsani (Psychic faculty) or Quwat-e-Tabi'i (Natural faculty) perform their function properly till the supply of Ruh is provided continuously. Cessation of supply of Ruh may Cause cessation in function of Quwa, as described earlier that Ruh is Hamil-e-Quwa (Carrier of Faculties) And Hararat-e-Ghariziyah (Calidum innatum) is Asbab-e-Quwa (tools for faculties), thus any obstacle in Inteqal-e-ruh (transportation of ruh) to the organ, stoppage of its entry into Shash (Lungs) causes Maut-e-fuja'iyah (Sudden death), similarly partial blood supply obstruction to any A'da (organs) causes takhathur-e-A'da (Necrosis), and complete obstruction in blood supply causes Mau-e-Khaliyah (cellular death), resulting in development of Gangaranah (Gangreen), it has already been seen that when Akhlat-e-lateefa (Glucose, Amino acids, Fatty acids and glycerol undergo ihtiraq (oxidation) with the help of Ruh (Pneuma) High energy in the form of Adenosine -triphosphate (ATP) is released, and heat is liberated, this ATP is used to perform all mechanical, physical and chemical function of the body, and provide continuous energy to all Quwa (Faculties), in other words all Quwa remains functioning in presence of Adenosine-tri-phosphate (ATP) [3, 8, 12, 13, 23, 24].

Tauleed-e-Hararat-wa-Quwat (Production of heat and energy) by Ruh (Oxygen)

The process of istehala (metabolism) is going in our body, this istehala is composed of two process namely Kaun-wa-Fasaad (Anabolism & Catabolism), production of heat and energy in the form of ATP take place in the result of metabolism, in the production of Hararat and energy two important factor involve, one is Ruh which is Jauhar-e-Hawa, and second is Akhlat-e-Lateefa (Nutrient) like Amino acid, glucose, fatty acid, glycerol, a great proportion of the chemical reaction in the cell is concerned with making energy in foods available to the various system of the cell, all the energy giving food stuff, e.g. carbohydrate, fats, protein, can be oxidized in the cell, and in this process large amount of energy are released, these same food can also be burned with pure oxygen outside the cell in an actual fire, and release large amount of energy, this time energy is released suddenly, all in the form of heat. The energy needed for physiological functioning is not heat but energy to cause mechanical movement in case of muscle function, to concentrate solution in case of glandular secretion etc [11, 18].

Abu Sahl Masihi has called the Ghiza (Nutrient) as waqood (Fuel) and Atmospheric air as Maddah-e-Ruh (Precursor of

ruh), physicians compared Dakhili ihtiraq with khariji ihtiraq of coal, they maintain that heat by combustion of coal, in the same manner there is fuel in our body which after meeting with Ruh (Oxygen) get burnt, the only difference in these two oxidation is that in microcosm (Human body) production of heat is in organised manner and release of energy in controlled manner, while in external world in case of coal combustion burning and release of energy is abruptly, internal heat release with i'tedal, this heat is called Hararat-e-Ghariziyah (innate heat) which is essential for the maintenance of health. Bukharat-e-Dukhaniyah (carbon-dioxide) is also produce with the result of Istehala (Oxidation) which is called Fadhlah-e-ruh (CO₂) excretion of fadhlah is essential which according to Ibn-e-Sina performed by Amal-e-Tanqiyah (Excretion) [3, 8, 12, 13, 15, 21].

Marakiz-wa-Masalik-e-Ruh: Ruh (Naseem) is present in every part of the body more or less, even a single cell cannot survive without Ruh, but Ruh is not equally distributed, Hawa-e-Mustanshak (Inhaled air) which contains 21% oxygen, 0.04% Carbon-dioxide, 79% Nitrogen, and this inhaled air is the part of Hawa-e-Muheet (Atmospheric air) which contain 20.95% oxygen, 0.04% Carbon dioxide, 78.09% Nitrogen, 0.93% argon, when Hawa-e-Mustanshak (inhaled air) enters in the lung alveoli, seperatedand absorbed by Haemoglobin and carried out along with blood, which is Hamil-e-ruh (Carrier of Pneuma) so wherever blood reaches Ruh is also reaches, we can describe Masalik-e-Ruh in two way, first is pulmonary circulation and second is systemic circulation [18, 21].

Pulmonary circulation: In pulmonary circulation Right ventricle of the heart pump out deoxygenated blood through pulmonary artery to the tiny air sacs of the lung, from where Ruh (oxygen) is picked up from inspired air and Dukhan (carbon dioxide) is expelled out by expiration, oxygenated blood then returns to the left Atrium of the heart through pulmonary vein, and crossing Atrio-ventricular valve enter into left ventricle [7, 19, 20, 22].

Systemic circulation: and then through Aorta Ruhani Dam (Oxygenated blood) pumped out and distributed all over body. And deoxygenated blood from all over body through veins enters into right atrium.

Naql-o-Hamal-e-Ruh (Transportation of Ruh): Atibba-e-Qadeem like Ibn Sina says, that pulmonary alveolus adjacent to pulmonary capillaries, so that when Hawa-e-Mustanshak (inhaled air) enters the lungs, Ruh is absorbed in the blood of those capillaries, and function of oxygenation is performed, oxygenation by excretion is the process in which Dukhan (CO₂) is expelled out by Quwat-e-Mumayyazah (Selective power), Atibba also have opinion that Quwat-e-Jazibah (Absorptive power) of blood absorb Ruh (oxygen) from alveoli, and Quwat-e-Dafi'ah (Expulsive power) expel out the Dukhan (CO₂), likewise absorptive power of tissue absorb the Ruh in tissue, and their Quwat-e-Dafi'ah expell out the Dukhan (Carbon dioxide) and this function is performed by Quwat-e-tabi'ah [11, 15, 18].

Transport of Ruh in Shara'in (Arteries): About 98% of blood that enter the left atrium from the lung has passed through alveolar capillaries and has become oxygenated up

to a PO₂ about 104 mm Hg, and 2% blood directly passed from Aorta through the bronchial circulation which supply the deep tissues of lung, on leaving the lung the PO₂ of shunt blood is about that of normal venous blood 40 mmHg, this blood combine in pulmonary vein with oxygenated blood from alveolar capillaries, this mixing of blood is called venous admixture of blood, and it causes the PO₂ of the blood pumped by left side of heart into Aorta to fall about 95 mm Hg.

Diffusion of Ruh from peripheral capillary into tissue:

when arterial blood reaches the peripheral tissue its PO₂ in the capillary is still 95 mm Hg, and PO₂ in the interstitial fluid average only 40 mm Hg, thus here pressure difference develops which causes oxygen to diffuse rapidly from blood into tissues [18, 20, 21, 24].

Diffusion of Ruh from capillary to the cell: *Naseem* always being used by cell, therefore the intracellular PO₂ is remain lower than the PO₂ of capillaries there is considerable distance between capillary and cell, therefore the normal intracellular PO₂ ranges from as low as 5 mm Hg to as high as 40 mm Hg, and average 23 mm Hg, because only 1-3 mm Hg oxygen pressure is required for full support of the chemical process that use oxygen in the cell, one can observe even this low cellular PO₂ of 23 mm Hg is more than adequate, and provide a large safety factors [15,18,19].

Methodology of study: The nature of the study is based on the conceptual analysis and explanatory doctrines. the source of collection of data was from three sources, as primary source of data collection the classical published books, manuscripts, and their translations are taken as source, secondary source of data collection is in the form of published and unpublished paper's, journals, thesis, reports etc. and Digital material is utilized as tertiary source, then complete material is analyzed, categorized and described in systemic manner, and elaborated according to need, in the light of Qadeem wa Jadeed knowledge. And the theme of the study is selected as "conceptual Analysis of Ruh, its Pathway, and distribution"

Conclusion and Discussion

After analysing the available resources of ancient and present Era about Ruh we can conclude that Ruh is Lateef Bukhari Jism (Light gaseous matter) obtained from Hawa-e-Mustanshak, (inhaled air) [10] part of Hawa-e-Muheet (Atmospheric air) and Ruh/Pneuma is nothing but gaseous matter which enter to the lungs, and separated in alveoli, and come in contact with Dam (blood), and absorbed by Haemoglobin and carried out along with blood which is Hamil-e-ruh (Carrier of Pneuma) so wherever blood reaches Ruh is also reaches [6], Atibba also have opinion that Quwat-e-Jazibah (Absorptive power) of blood absorb Ruh (Naseem) from alveoli, and Quwat-e-Dafi'ah (Expulsive power) expel out the Dukhan (CO₂), proper functioning of Quwa (Faculties) is depends upon Ruh, Ruh is a materialistic substance produces Hararat-e-Ghariziyah (innate heat) and energy after burning with Akhlat-e-lateefa, it is needed for all physiological functioning, and necessary for existence of life, in view of Galen Ruh is the part of atmospheric air, and in view of Ibn-e-sina it is produced by Akhlat-e-lateefa and Hawa-e-bairuni, Raban Tabri Described Ruh as Nafs (Psyche), and Masihi opine that Ruh is obtained from

Hawa-e-mustanshak (inhaled air). Ruh is named after concerned Quwa namely; Ruh-e-Tabi'i, Ruh-e-Haiwani, Ruh-e-Nafsani, all Quwa perform their functions if proper ruh is supplied to them, Abu Sahl Masihi has called the Ghiza (Nutrient) as waqood (Fuel) and Atmospheric air as Maddah-e-Ruh (Precursor of ruh) [11, 28,1], Hawa-e-Mustanshak (inhaled air) enters the lungs, Ruh is absorbed in the blood of those capillaries. Quwat-e-Jazibah (Absorptive power) of blood absorb Ruh (oxygen) from alveoli, and Quwat-e-Dafi'ah (Expulsive power) expel out the Dukhan (CO₂) [12].

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