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Significance of Preventive Aspect of Unani Medicine in COVID 19

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Today's world evidences the influence of lifestyle on human health in relation with the outcomes of Covid 19 management. As not like past, despite of highly equipped medical facilities, world suffers a lot to control and manage Covid – 19 as disease profile is changing rapidly and reduces the productivity of the entire globe. During the past several years, there has been a growing interest in the medical implications of finding remedies for infectious and non-infectious disease as conventional medicines failed to provide perfect solutions. As Unani system of medicine emphasizes the optimum function of tabi'at for the healthy life, the tabi'at is governed by the healthy life style. When tabi'at became weak, it leads to many diseases. not only lifestyle diseases such as cancer, cardiovascular diseases, arthritis, atherosclerosis, hypertension, but also other infectious diseases as well. In recent years, a multitude of studies provide comprehensive evidence that increased production of various substances produced in the body by unhealthy life styles (food and diet, less physical activities) which believed to weaken the immunity, so that body fails to prevent or fight against infections, cancers and lead to the development of lifestyle diseases which justifies the concepts of Unani medicine on diseases. Unani system of medicine emphasizes the maintenance of healthy life through implementing asbab-e-sittazarooriya (six essential factors). They influence on human body to generate a new state or maintain the persisting state and help in the promotion of health and prevention of diseases. A balanced relationship between the six essential factors keeps the humors and the temperament on the right track and due to their imbalance all mental and somatic diseases occur. Unani System does not only address the symptoms of lifestyle diseases, moreover, it identifies and deals with the underlying causes. Hence, by adoption of an appropriate Unani lifestyle plan we can strengthen the tabi'at and by that prevent and reduce the degree and severity of the diseases, thus ensuring a better quality of life.

Keywords: lifestyle disorders, defense mechanism, Unani medicine, six essential factors

INTRODUCTION

The COVID-19 pandemic caused by SARS-CoV-2 became an important problem for health and economy of all the countries and societies. Unani medicine emphasizes the equilibrium in all the aspects of the individual including internal and external factors. When human beings synchronized with environment, he remains healthy, and when there is any interruption in this synchronization disorders occur. According to Unani medicine, infectious and non-infectious diseases are resulting from the weak *tabi'at* (*physis*). *Tabi'at* is the responsible phenomena that maintains the every body functions and keep the human body in harmony. Main cause that weakens the *tabi'at* is unhealthy lifestyle. A disease associated with the way a person or group of people lives is known as lifestyle diseases [1]. Lifestyle disorders are not only affecting the elderly people, but also affecting all the ages without sex discrimination. People with lifestyle disorders are more prone to have Covid 19 and its complications, thus have more fatality rate. The report released at the World Health Assembly in Geneva point out the facts that the countries like Brazil, China, Russia and India currently lose more than 20 million productive life-years annually from life style diseases and the number is expected to grow by 65% by 2030 [2].

At present, Covid 19 infection is the main cause of mortality in the world and they draw more concern which evidenced by the number of deaths. Free radicals such as oxygen radicals and nitric oxide are generated in microbial infections. Developing various concepts in free radical biology are connected on the pathogenesis of various diseases. Free-radical induced pathogenicity in virus infections is of great importance, because evidence suggests that NO and oxygen radicals such as superoxide are key molecules in the pathogenesis of various infectious diseases [3]. As free radicals are one of the main causes of lifestyle diseases and the individual with life style disorders are more prone for Covid 19 related complications, the Covid 19 itself produces free radical which in turn will magnify the disease scenario. As such free radicals play a major role in Covid 19.

Unani system of medicine is one of the oldest systems of traditional medicine in the world which is popularly practiced in Indian sub-continent and other parts of the world. Unani healing systems employs a holistic approach to the prevention and treatment of disease. Prevention of disease is as much a concern of the system as

curing of sickness. In Unani system, six essentials factors (*Asbab-e-Sitta-e-Zarooriya*) and where applicable, some non-essential factors (*Asbab-e-GairZarooriya*) have been laid down for the promotion of health and prevention of diseases[4].

Free radicals and infectious diseases

A free radical may be defined as a molecule or molecular fragments containing one or more unpaired electrons in its outermost atomic or molecular orbital and are capable of independent existence[5]. The first demonstration of the chemical existence of free radicals has been the isolation of the nitroxyl radical in the form of Fremy's salt ($(\text{KSO}_3)_2\text{NO}$) in 1845[6]. Reactive oxygen species (ROS) and reactive nitrogen species (RNS) are described as free radicals and others are non-radical reactive derivatives such as HOCl (Hypochlorous acid), hydrogen peroxide, ozone, etc[7]. The reactivity of radicals is generally stronger than non-radical species though radicals are less stable[8]. Free radicals are formed from molecules by the homolytic cleavage of a chemical bond and via redox reactions, once formed these highly reactive radicals can start a chain reaction[9].

Free radicals are generated in excess in any microbial infections especially in viral infections. Free-radical induced pathogenicity in virus infections is of great importance, because evidence suggests that NO and oxygen radicals such as superoxide are key molecules in the pathogenesis of various infectious diseases. The reactive nitrogen species cause oxidative tissue injury and mutagenesis through oxidation and nitration of various biomolecules accelerate viral mutation. Further, NO appears to affect the host's immune response, with immunopathological consequences. NO-induced immunosuppression may thus contribute to the pathogenesis of virus infections and help expansion of quasispecies population of viral pathogens [3].

ROS has been implicated in cell damage, necrosis and cell apoptosis due to its direct oxidizing effects on macromolecules such as lipids, proteins and DNA. Free radicals are however, not always harmful. They also serve useful purpose in the human body. Hence, complete elimination of these radicals would not only be impossible but also harmful[10]. The human body has several mechanisms to counteract free radicals by producing antioxidants, which are either naturally produced in situ, or externally supplied through foods and/or supplements. When an overload of free radicals cannot gradually be destroyed, their accumulation in the body generates a phenomenon called oxidative stress. Oxidative stress occurs when either endogenously metabolic generated reactive molecules or exogenous reactive substances in the environment interact with biologic structures, resulting in altered cellular physiology[11]. This

process plays a major part in the development and increase the magnitude of illnesses [8].

Source of Free Radicals

Free radicals are produced either from normal cell metabolisms in situ or from external sources[8]. Most of the external sources and some of the endogenous generation of free radicals are due to lifestylesuch as[3,10,11] processed, overcooked, leftover foods, Sugar, and sugary foods, stress, excessive exercise, alcohol, extended sun exposure, radiation, medication, smoking and passive smoke, perfumes additives, coffee, foods of animal origin, computers/monitors/TVs, foods that have been barbecued, broiled, fried, grilled, or otherwise cooked at high temperatures, hydrogenated vegetable oils, polluted air, solvent-laden water, pesticide-laced food and/or radiation exposure, electromagnetic fields, microwave ovens, cell phones, refrigerators, etc.

Other sources of generation of free radicals are immune cell activation, inflammation, ischemia, microbial infections, cancer, aging, etc.Recent studies provide comprehensive evidence on oxygen derived free radical reactions in the pathogenesis of many lifestyle disorders such as cancer[10,13], cardiovascular diseases[3,13], arthritis[13], atherosclerosis[10,15], hypertension[13,14], diabetes[13], skin lesions[13], etc.

Disease Prevention in Unani Medicine

The Unani medicine system recognizes the influence of surroundings and ecological conditions on the state of health of human beings. The aim is to restore the equilibrium of various elements, humours and faculties of the human body[16].Unani medicine employs a holistic approach on preventive and treatment aspects. As Prevention is better than cure, it is as much as concern as treatment of an illness. This influence is based on the six essential pre-requisites or *asbab-e sittazarooriya*. According to Unani medicine “Asbab” is the precursor that influences on human body to generate a new state or maintain the persisting state and help in the promotion of health and prevention of disease. Six essentials factors are[17-24]

- Air - *Hawa-e-Muheet*
- Food and drinks –*MakoolatwaMashroobat*
- Bodily movement and repose–*HarkatwaSukoon-e-Badani*
- Psychic movement and repose–*HarkatwaSukoon-e-Nafsani*

- Sleep and wakefulness –*NaumwaYaqza*
- Evacuation and retention–*EhtibaswaIstifragh*

The correct application of these factors can lead to healthy life. Unani system of medicine also recognizes the influence of surroundings and ecological conditions on the state of health of human beings. As per the concept of Unani medicine, the diseases occur due to poor management of six essential factors over long period. When there is improper management of *Asbab-e-Sitta Zarooriya*, toxins are accumulated in the body and *Tabi'at* (body physis - the supreme authoritative faculty of our body responsible to maintain health) fails to preserve the health if this is beyond the ability of the *tabi'at*. These toxins build up initially at the humoral level and lead to an accumulation of excess or abnormal humours. Finally, this accumulation of toxins adversely affects the various tissues and organs of the body, leading to structural damage and functional disturbances. Similarly, the free radicals are also generated due to unhealthy lifestyle and environmental condition and leading to various lifestyle disorders. When they are in excess, body antioxidant defense system cannot cope, result in oxidative stress, a deleterious process that can seriously alter the cell membranes and other structures such as proteins, lipids, lipoproteins, and deoxyribonucleic acid (DNA), etc.

Therefore, in first instance accumulation of free radicals in the body should be prevented. In Unani literature based on the six essentials factors there are number of preventive measures has been mentioned for the disease prevention and healthy life. Such measures can be applied invariably for the prevention of infections and other diseases.

Air pollution is one of the causes of free radicals. In Unani medicine emphasizes the necessity of unpolluted, clean air as the most necessary for health. Avicenna, the famous Arab physician, noted that the change of environment relieves the patients of many diseases. He also emphasized the need for open airy houses with proper ventilation [17]. In this era due to urbanization and industrialization air pollution is inevitable factor. However, there should be a collective effort by every individual to prevent air and environment pollution by changing the lifestyle and taking good care of the environment. To protect the air and environment, energy sources other than fossil fuel should be used as conserve energy. Food such as coffee, food of animal origin, alcohol, processed, overcooked, leftover food, solvent-laden water, etc. are the

source of free radicals; it is recommended in Unani system that one should take the food which is fresh, clean and free from putrefactions[18].

Unani medicine gives importance to food as medicine when it is used in the management of diseases. It is called *Ilajbilghiza* (dieta-therapy), which is one of the four modalities of treatments mentioned in Unani such as *Ilajbildawa* (pharmacotherapy), *Ilaj bit tadbir* (regimental therapy) and *Ilajbil yad* (surgery). Hence, during healthy condition as well as in diseased conditions certain types of food are recommended and certain food are prohibited on the basis of individual temperament (*Mizaj*) and the nature of the disease. Frequent intake of dry foods like Badam (almond), Anjeer (fig), Kajoor (dates), MurabbeZanjabeel (Ginger jam), Lehzan (Garlic) soaked in honey, Maul fawaqiya (fruit juice) Ab e saib (apple juice), Ab e mospati (orange juice), mako (*Solanum nigrum*), Ab e leemoon (lime juice), Ab-e zanjabeel (ginger juice), Ab e ushba (Iramusu juice), Ab e anar (pomegranate juice), Maussagheer (barley water), Maulleham (meat broth), Maul Asal (Honey mixed with boiled water), Moringa leaves & Satawar porridge, Hareera (confection) made with wheat flour, butter, milk and dry fruits like plums, dates, Tea made with Darchini (*Cinnamomum zeylanicum*), Cardamom (*Elettaria cardamomum*), Ginger (*Zingiber officinalis*) increase the immunity.

In prevention of lifestyle diseases vegetables, fruits like apple, pomegranate, pineapple, grapes, papaya, etc. are recommended and food contains excess salt, egg yolk, liver, kidney, meat are not recommended. This supported by the evidence from a trial which demonstrated that subjects consuming high fruit and vegetable diets significantly reduce the life style disorders[19][20]. Thus in order to prevent any such diseases, eat a healthy high-fiber, low-fat diet with lots of freshly prepared yellow and green vegetables, fresh fruits, grains and beans.

Dirty water is considered as a carrier of several diseases. The Unani system, therefore, strongly emphasizes the need for keeping the water free from all sorts of impurities. Like food, different type of drink also mention in Unani System for the prevention and cure of some diseases. In cardiac diseases alcohol, tea contains salt, coffee, etc. are not recommended. Fruit juices and vegetable juices are recommended[18,21,22]. This is now a proved fact that fresh fruits and vegetable contains antioxidants which prevent free radical damage. Many of the chemicals that generate free radicals are found in municipal water supplies. It is good to drink a lot of water, but to avoid tap water as

much as possible. It is recommended to use a solid-carbon-block filtering device for drinking water from tap, well or spring water.

The modern-day fashions for fitness have resulted in a significant number of people dying with exertion of exercise to their hearts and lungs. It is a proven fact that regular physical exercise enhances the antioxidant defense system and protects against exercise-induced free radical damage while endurance exercise can increase oxygen utilization from 10 to 20 times over the resting state[23]. This greatly increases the generation of free radicals, prompting concern about enhanced damage to muscles, and other tissues[3]. In Unani system of medicine not only exercises are considered necessary but also rest is considered necessary for maintaining good health. They also indicate that this keeps the heart and the liver in good condition[24,25].

Now modern science is aware that stress is one of the main risk factors for producing most of the lifestyle diseases which are also responsible for free radicals. But Unani system documents extensively the impact on health of psychological factors such as happiness, sorrow, and anger etc. A balance between psychic movement and repose is emphasized for the prevention of diseases. Kabiruddin (1969) stated that, nervous excitement leads to several diseases, especially cardiac diseases. Further he explained that the causes such as anxiety, mental tension, etc. increase the secretion of chemical substances that are responsible for the constriction of the blood vessels. This leads to hypertension, ischemic heart diseases, etc[24].

Normal sleep and wakefulness are considered essential for good health in Unani system of medicine. Sleep provides physical and mental rest. The compounded sleep deprivation or sleep debt pushes metabolism into catabolism (excess free radicals formation, increase glycation reactions and cross-linked proteins, imbalances in apoptosis, accumulation of waste products, and failure of the repair systems and deficits of the immune system.) and melatonin is a very powerful anti-oxidant hormone which produces during sleep[26]. Further a theory of sleep is proposed in which cerebral free radicals accumulate during wakefulness and are removed during sleep. Removal of excess free radicals during sleep is accomplished by decreased rate of formation of free radicals, and increased efficiency of endogenous antioxidant mechanism[27].

According to Unani medicine, proper and normal functioning of the excretory processes is necessary to keep good health[4]. If the waste products of the body are

not completely excreted or when there is a disturbance or blockage, it leads to diseased state. Free radicals are an example of toxic waste products that can seriously cause damage if allowed to accumulate. But complete elimination of these radicals is also harmful[28]. Hence, not only evacuation but also retention of certain thing also mentioned mandatory in Unani system for maintenance of health.

Unani Aspect of Treatment of COVID 19

The Unani treatment approach consists of prevention of disease, thus increase the strength of the tabi'at by moderating the life style, food and diet through asbab e sit e zarooriya. Moreover, elimination of abnormal/excess humour associated with the illness, thus free radicals are eliminated from the body. This is done by adopting various regimens mentioned in Unani. *Munzij-Mushil* therapy (encouragement of the concoction and elimination of the abnormal humour), *Hijamah*(cupping therapy), *Irsal-e-alaq* (leech therapy), *fasd* (Venesection) are some of them. Beside this, strengthening the tabi'at by giving *muqawwiyat* (tonics) such as *muqawwi-e-aam*(general body tonic), *muqawwi-e-meda*(tonic for the stomach), *muqawwi-e-jigar* (liver tonic), *muqawwi-e-dimagh* (brain tonic) etc is paramount important to bring back the body to its optimum functional state[29-31]. In Unani system of medicine, the concept of tonics (*Muqawwiyat*) is a unique feature and a large number of herbal drugs and dietary components are described as tonics in Unani system of medicine. Such drugs are used to tone up the vital organs and strengthen them to save against the possible harmful substances.

Reactive oxygen species can be combated with the involvement of antioxidants of both exogenous and endogenous origin. Anti-oxidants are substances capable to mop up free radicals and prevent them from causing cell damage and assisting the further infections. Research is increasingly showing that antioxidant rich foods, herbs reap health benefits against the various infections. The herbal products today symbolize safety also compatible with human normal physiology. Phytoconstituents present in them are also important source of antioxidant and capable to terminate the free radical chain reactions.

The great Unani scholars advocated many single and compound drugs which act as tonics and immune modulatory effect as per the modern terminology for various infectious ailments. They are Kalonji (*Nigella sativa*), Asgand (*Withaniasomnifera*), Elva (Pulp of *Aloe vera*), Fowah (*Rubia cordifolia*), Ghudal (flower of Hibiscus), Haldi (*Curcuma longa*), Neem (*Azadiracta indica*), Bargat (*Ficus benghalensis*),

Satawar (root of the *Asperagusrecimosus*), Nilofar (rhizome of seeds of *Nelumbo nucifera*), Asel e soos (*Glycyrrhiza glabra*), Fil file daraz (*Piper longum*), Fil filsiya (*Piper nigrum*), Amla (*Embilica officinalis*), Thulsi (Leaves of *Oscimumsantum*), Darchini (*Cinnamomum zeylanicum*), Ab e tamatar (tomato juice) as single medicines and HabbeNazla, IthripaleSahathra, MajooneUshba, Arq e Ajeeb, Arq-e Badiyan, Khameeremarwareed, KhameereGauzabansada, etc as compound medicines. Recent studies carried out on these single drugs and some of the compound drugs have been proved that these are having antioxidant potential which is main treatment option for the modern day free radical induceddamages[32].

CONCLUSION

Present world lives with drastic changes in the life style. Consequently, increased number of subjects is at risk of diseases and there is a high occurrence of evidences for the direct relationship between oxidative stress and these diseases. Human body has an ability to produce some antioxidants like superoxide dismutase, catalase and glutathione peroxidase for the protection against free radicals; according to Unani, this is part of the function of tabi'at. But due to unhealthy lifestyle there is imbalance between the free radical production and tabi'at or body defense system. From the modern medical system, although there is a welcome move towards educating the patient on the importance of lifestyle changes, treatment is still pre-dominantly based upon the use of medication which is not hundred percent success especially in Covid 19 management. Unani System addresses whole of these issues holisticallyand deals with the underlying causes.This is further strengthened by temperamental / humoral theory which gives a broad idea on risk factors and treatment option for the effective management of various diseases.

Therefore, by adoption of an appropriate lifestyle plan according to Unani system of medicine, the selective Ilaj bit tadbir (regimenal procedures), appropriate use of muqawwiyats,it is possible toprevent mobility and mortality of Covid 19.

CONFLICT OF INTREST: None

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