



AN INTEGRATED APPROACH OF UNANI SYSTEM OF MEDICINE IN THE MANAGEMENT OF COVID-19: AN OVERVIEW

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ABSTRACT

The Novel Corona virus disease (Covid-19) is a major public health emergency of global concern which is caused by Severe Acute Respiratory Syndrome Corona Virus-2 (SARS-CoV-2). The disease is thought to be mainly transmitted through droplet infection, fomites but other modes such as airborne transmission and oro-fecal transmission are also speculated. The clinical features of the disease range from asymptomatic cases or mild symptoms, which include nonspecific symptoms such as fever, cough, sore throat, headache, and nasal congestion to severe cases such as pneumonia, respiratory failure. Research is underway to develop effective vaccines and medicines for the disease. Hence, the need arises to develop new effective methods

of infection control that are accessible to the maximum population. As per Unani medicine exact term or disease is not mentioned in Unani literature but an umbrella term *amraz-e-waba* is used in Unani medicine for all types of epidemics and for those diseases which affect a large geographical area. Epidemic containment measures in Unani system of medicine focus on prevention through different measures, purification of surroundings using certain herbal drugs as fumigants or sprays, dietary management, prophylactic interventions for improving the immunity and maintenance of health, simple remedies based on presentation of the

symptoms. Present review has been studied in the light of Unani medicine which may provide a new insight for the prevention and possible management of this disease.

KEYWORDS: Corona, Covid-19, Unani, *amraz-e-waba*, Epidemic.

INTRODUCTION

Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is a novel coronavirus belonging to the family Coronaviridae that was first identified in Wuhan, Hubei province, central China in December 2019 and is known to be responsible for A series of acute atypical respiratory infections.^[1,2,3] The respiratory illness caused by this virus was termed as coronavirus disease 2019 or simply COVID-19 by the WHO.^[4,5,6,7] After being broadcast as a public health emergency on January 30, 2020, COVID-19 was subsequently declared a pandemic on March 11, 2020 by the WHO.^[8,9] Globally, as of 8 February 2021, there have been 105,658,476 confirmed cases of COVID-19, including 2,309,370 deaths, reported to WHO. India has reported 10,838,194 confirmed cases of COVID-19 with 155,080 deaths.^[10]

Modes of transmission

Infection is transmitted through inhalation or contact with infected large droplets generated during coughing and sneezing by symptomatic patients but can also occur from asymptomatic people and before onset of symptoms.^[1,11] Transmission can also occur through indirect contact by way of fomites on surfaces in the immediate environment around the infected person. Airborne transmission may be possible.^[1] Patients can be infectious for as long as the symptoms last and even on clinical recovery.^[11]

Incubation period

The incubation period varies from 2 to 14 d [median 5 d].^[12]

Clinical presentation

The clinical features of COVID-19 are varied, ranging from asymptomatic state to acute respiratory distress syndrome and multi organ dysfunction. 81% of patients present with mild manifestations, 14% with severe manifestations, and 5% with critical manifestations (defined by respiratory failure, septic shock, and/or multiple organ dysfunction). The common clinical features include fever (upto 90%), dry cough (60-86%), sore throat, headache, fatigue (38%), myalgia (15-44%) and breathlessness (53-80%).^[13] Some patients may also present with

gastrointestinal symptoms such as abdominal pain, vomiting, loose stools, olfactory and/or gustatory dysfunctions and anosmia/ageusia.^[13,16] Conjunctivitis has also been described.^[14]

The incidence of SARS-CoV-2 infection is seen most often in adult male patients with the median age of the patients was between 34 and 59 years. SARS-CoV-2 is also more likely to infect people with chronic comorbidities such as cardio-vascular and cerebrovascular diseases and diabetes. The highest proportion of severe cases occurs in adults ≥ 60 years of age, and in those with certain underlying conditions, such as cardiovascular and cerebrovascular diseases and diabetes. Children might be less likely to be infected or, if infected, present milder manifestations than adults.^[15]

Diagnosis is typically done by detection of SARS-CoV-2 RNA via reverse-transcription polymerase chain reaction (RT-PCR) most commonly collected from nasopharyngeal (NP) or oropharyngeal swabs.^[1] Chest X-ray and CT imaging are used to identify COVID-19 in suspect individuals with adverse molecular diagnosis.^[16]

Unani perspective of epidemic/pandemic diseases (*Amraz-e-waba*)

Unani system of medicine is based on the humoral theory postulated by Hippocrates, according to him the state of body health is regulated by qualitative and quantitative equilibrium of four humours. Humoral imbalance or dystemperament is responsible for development of disease.^[17,18] Unani medicine does not mention epidemics and pandemics as separate entities, and a common term '*waba*' is mentioned which has been defined as an infection (*ta'affun*) which occurs in the air.^[19] While going through unani literature there is no direct description about COVID-19 but an umbrella term *Amraz-e-Waba* is used in Unani medicine for all types of epidemics and for those diseases which affect a large geographical area.^[19,20] The environmental cause is the most common cause of an epidemic or pandemic.^[21] According to Ibn-e-Sina, 'air and water are contaminated only after admixture of *ajsam-i-khabitha*, which does not happen otherwise'. Epidemics, referred to as *waba* in Unani medicine, are thought to occur if such contagion or *ajsam-i-khabitha*, as they are referred to, find a place in air and water.^[17,22,23,24] Ibn-e-Sina stated that epidemics spread from one person to another, and one city to another 'like a message' Zakariya Razi stressed this fact and stated that 'there will always be something common in patients of epidemics, whether a place, food, drink or travel history.'^[25] People with an underlying disease or a weak constitution have been described by Ibn-e-Sina as being more susceptible to epidemic diseases and having a poor prognosis.^[24] As Ibn-e-Hubl Baghdadi mentioned in his treatise

Kitab Al-Mukhtarat fil-Tib, if southern winds are replaced by northern winds, then catarrhal illnesses will occur in abundance.^[18] Because, as stated by Razi in the 15th volume of his treatise Kitab Al-Hawi, southern winds are warmer while the northern winds are colder, and this change of temperature makes people more susceptible to respiratory infections.^[25]

Clinical features of amraz-e-waba

A number of clinical features have been described in context of *amraz-e-waba* such as low to high grade fever, dry cough, sore throat, nasal irritation, malaise, dyspnoea, extreme thirst, loss of appetite, sleep, nausea, vomiting, diarrhea, abdominal pain, alternate and small pulse syncope. Weakness sets in the early stage of disease. Pleurisy and pneumonia usually develop as the complications of disease.^[17,18,19,23,24]

The clinical features of COVID-19 resemble more with *Nazla-e-wabaiya*, a type of *amraz-e-waba* which has been well described many years ago in Unani text and clinically featured by high grade fever, headache, nausea and vomiting, running nose, dry cough, respiratory distress, alternate and small pulse, asthenia, foul smell breath, cold extremities etc.^[26]

As per Unani system of medicine, the disease may progress into different categories leading to a condition called buhran which is of classified into: *buhran jayyid* and *buhran raddi*.

These are further divided into *buhran jayyid taam* and *naqis*, *buhran raddi taam* and *naqis*.

Buhran jayyid taam: When *tabiat* dominates over disease and expells the diseased matter at once. Patient recovers completely.

Buhran jayyid naqis: When *tabiat* partially dominate over disease and expells the diseased matter gradually so that patient does not recover completely and remains in a mild diseased condition.

Buhran raddi taam: It is a fatal condition. In this type, disease dominates over *tabiat* so that patient dies.

Buhran raddi naqis: When disease gradually dominates over *tabiat* to weaken it till the fatality of the patient.^[18]

It is evident that despite the unavailability of sophisticated instruments and techniques Unani scholars could envision the concept of infectious diseases and epidemics as they described well about their predisposing factors, causes, reservoirs, mode of transmission, preventive measures and treatment in various aspects.^[19]

The theories and observations closely resemble the contemporary knowledge of infections and epidemics which reinforce the fact that Unani medicine can play a significant role in combating covid-19 and its possible management can be done on the principles of *amraz-e-waba*.^[22]

Unani management

According to Jalinoos ‘a physician should always keep an eye on changes of weather and air’. This system perceives the influence of surroundings and ecological conditions on the state of health of human beings. It lays great emphasis on the maintenance of a proper ecological balance and on keeping air, water and food free from all possible pollution and pathogens.^[27] Since at this time there is no approved or effective treatment for covid-19, prevention is crucial. Holistic approach of Unani system of medicine gives focus on prevention through different measures, dietary management, prophylactic interventions for improving the immunity and maintenance of health, use of simple remedies based on presentation of the symptoms.^[28] These measures are effective not only for managing but also preventing and decreasing the susceptibility of getting involved in disease.

***Usool-e-ilaj* (Principles of treatment)**

***Izala-e-sabab* (Elimination of underlying cause):** Epidemic containment measures mentioned by Unani scholars can be broadly divided into cause centric and host-centric measures and these are applicable at the environment and individual level, respectively.

- a. At environmental level** - measures are aimed to eliminate the pathogens present in the environment through disinfectant and using of certain herbal drugs as fumigants or sprays.
- b. At individual level** - measures are aimed to strengthen the host defense by using specific drugs like:
 - Immunomodulatory drugs (improving immunity against disease)
 - *Muqawwi aza raisa adwia* (to protect vital organs)
 - *Mufarrehat wa muqawwi qalb adwia* (exhilarants and cardiogenic drugs)
 - *Tiryaaqat* (antidotes)
 - *Mulayyinat* (laxatives)

***Izala-e-alamat* (Symptomatic treatment) by**

- *Dafa-e-humma adwia* (antipyretics)

- *Muhallilat* (anti-inflammatory)
- *Dafa-e-sual adwia* (antitussive)
- Use of drugs for symptomatic relief in sore throat, breathlessness etc.^[19,20,22,29,30]

Preventive measures: The preventive measures for epidemic diseases are collectively aimed towards:

- Maintaining social distance
- Wearing mask
- Prevention of spread of infection
- Isolation, quarantine
- Hygiene and anti-septic measures
- Improvement of immunity and promotion of general health.

Apart from treating disease conditions, Unani medicine lays particular emphasis on *Asbab-e Sittah Zarooriyah* (Six essentials of life) for promoting existing health and prevention of disease.^[17,24,28] So it should be followed strictly.

The basic measure advised is to avoid places where an epidemic is spread. In case it is not avoidable, then a person advised to stay at a well-ventilated place, preferably distant from the ground and social distancing should be followed. When interacting with a patient, care should be taken that the air currents may not be directed from a patient to a healthy person.^[24,25] It was Hippocrates who coined the term quarantine and advised restriction of movement for forty days to the suspects and to stay in properly ventilated places with optimum temperature, neither too hot nor too cold.^[17,28,31]

Sanitisation of surroundings

Unani physicians employed medicinal herbs as disinfectants in the form of decoction, spray, fumigants. Several drugs have been prescribed for this purpose.

Spraying: spray with diluted vinegar to keep the air clean, application of *Arq-e-Gulab* (*Rosa damascena*) on the body and curtains etc.

Fumigation (*Bakhoor*): According to the health of the patient, dryness to be produced in the air so as to prevent infection.^[25]

Fumigation with herbs like *Qust Shirin* (*Saussurea lappa*), *kundur* (*Boswellia serrata* Roxb.), *Ood* (*Paeonia emodi*) and *Murr* (*Commiphora myrrha*), *Qaranfal* (*Syzygium aromaticum* L.),

Chharela (*Nardostachis jatamansi* L.), *Nagarmotha* (*Cyperus rotundus* L.), *Waj* (*Acorus calamus* L.), *Badam Talkh* (*Prunus amygdalus*) is also advisable for air purification.

Fumigation with *sandal* (*Santalum album* L.) and *kafoor* (*Cinnamomum camphora* L.) is advisable for aromatic purpose also.^[17,18,24,31]

Fumigation with *Sandal* (*S. album* L.), *Kafoor* (*Cinnamomum camphora* L.), *Post Anar* (*P. granatum* L.), *Tuffa* (*M. domestica* L.), *Aas* (*M. communis* L.), *Bahi* (*Cydonia oblonga*), *Abnoos* (*Diospyros ebenum*), *Sazaj* (*Cinnamomum tamala* L.), *Jhau* (*Tamarix dioica*) to prevent the microbes and their infection. Fumigation with *amber* (*Liquidambar acalycina*), *loban* (*Styrax benzoides*), *sandroos* (*Hymenaea verrucosa*) *za'fran* (*Crocus sativus* L.), *aabnoos* (*Diospyros ebenum*), *mastagi* (*Pistacia lentiscus* L.), *mushk* (*Moschus moschiferus* L.), *izkhar* (*Cymbopogon jwarancusa*), *abhal* (*Juniperus communis* L.), *zanjabeel* (*Zingiber officinale*), *sibr* (*Aloe vera* L.) have been recommended by Zakariya Razi to destroy infectious agents.^[25]

Modes of treatment

***Ilaj bil tadbeer* (Regimenal therapy)**

It has been recommended to eliminate “*Mawad-e-fasida*” (morbid humours) from the body to maintain health during epidemics through *Qai* (vomiting) and *Ishal* (purgation) and *Fasd* (venesection) and other essential regimens of which produces dryness in the body, avoiding *Riayzat* (exercise) and *Hammam* (bathing).^[17,23]

***Ilaj bil ghiza* (Dietotherapy)**

Razi and Ibn-e-Sina suggested reduced diet intake, and especially to avoid meat, fish, oil, milk products, fruits with high water content and alcohol during epidemics.^[18,24]

These restrictions were placed probably because the zoonotic spread of infections was speculated, and fish and animals living near the ground were more likely to be infected than those living at higher altitudes. It is also advised to stay hydrated and consume citrus and sour fruits (but in less quantity), especially grapes, apples, lemon, etc.^[17,18,25,31] Overeating and under-eating both are considered harmful as they have adverse effects on the bodily constitution.^[24]

Use of *sattu* (mixture of ground pulses and cereals) in morning with cold water is beneficial during epidemics.^[23]

This has been recommended for preventive as well as therapeutic purposes during epidemic.

***Ilaj bil dawa* (Pharmacotherapy)**

- **Prophylactic approach through Immunomodulatory and Health protective drugs**

Unani system of medicine also believes that *Quwat-e-mudabbir-e-Badan* (innate immunity) is the supreme force that regulates all the functions of the body and acts against the diseases.^[20] As per Unani classical wisdom, improving immunity with specific unani drugs is one of the key approaches to fight this covid-19.

Single drugs: *Bahi dana* (*Cydonia oblonga*), *Unnab* (*Zizyphus jujuba*), *Sapistan* (*Cordia myxa*), *Karanjwa* (*Caesalpinia bonducella*), *Imli* (*Tamarindus indica L.*), *Revand chini* (*Rheum australe*), *Gul-ebanafsha* (*Viola odorata*), *Halela* (*Terminalia chebula Retz.*), *Amaltas* (*Cassia fistula*), *Turanjabeen* (*Alhagi pseudalhagi*) and *Aab-e-anar* (*Punica granatum*).^[22,29]

Compound formulations

Some *tiryaaqat* (antidotes) which have been described to use during epidemics as prophylactics and therapeutics, such as *Tiryaaq-e-Wabai*, *Tiryaaq-e-Farooq*, *Tiryaaq-e-Arba*, *Tiryaaq-e-Nazli*, *Tiryaaq-e-Mashridutes*, *Qurs Zahar Mohra*.^[23,24,29]

Sibr (*Aloe vera*) and *Murr makki* (*Commiphora myrrha*), one part each, *za'fran* (*Crocus sativus*), 2 parts. The drugs should be finely powdered and taken in a dose of 2.4 g per day.^[25,31]

- **Therapeutic approach**

Single drugs: *Bahi dana* (*Cydonia oblonga*), *Unnab* (*Zizyphus jujuba*), *Sapistan* (*Cordia myxa*), *Karanjwa* (*Caesalpinia bonducella*), *Zanjabeel* (*Zingiber officinale*), *Gilo* (*Tinospora cordifolia*), *Aslassus* (*Glycyrrhiza glabra*), *Seer* (*Allium sativum*), *Rehaan* (*Ocimum sanctum*), *Afsanteen* (*Artemisia absinthium*), *Asgand* (*Withania somnifera*), *Kalonji* (*Nigella sativa*), *Tukhm-e Kasoos* (*Cuscuta reflexa*).^[18,19,29]

Compound formulations

Unani formulations described in Unani literature for the management of infectious disease especially during “*Waba*” are: *Joshandah Nazla*, *Majoon Ushba*, *Majoon Chobchini*, *Khamira Sandal*, *Khamira Marvareed*, *Qurs Zahar Mohra*, *Habbe Jadwar*, *Tiryaaq-e-Wabai*,

Tiryaaq-e-Farooq, Tiryaaq-e-Arba, Tiryaaq-e-Ufai, Tiryaaq-e-Nazli, Qurs Kafoor, and Gile Armani along with vinegar, etc.^[17,18,24,25]

For symptomatic relief: *Habb-e-surfa, Khamira-e-banafsha, Laooq-e-sapistan, Sharbat-e-sadr, Habb-e-bukhar, Habb-e-mubarak, Sharbat-e-toot siyah, Laooq khayar shambar, Laooq-e-katan, Sharbat zoofa murakkab, Habb-e-hindi zeeqi*.^[20,29]

Nuskahaj (Prescriptions)

Decoction of *bahidana (Cydonia oblonga)* 3 g, *unnab (Ziziphus jujube)* 5 in number., *sapistan (Cordia dichotoma)* 9 in number, *gul-e-banafsha (Viola odorata)* 7g., *khubazi (Malva sylvestris)* 5g., *khatmi (Althea officinalis)* 5g., *mulethi (Glycyrrhiza glabra)* 5g., and *khaksi (Sisymbrium adenophorum)* 5 g. for 7-14 days twice a day.

In case of associated diarrhea, *habb-ul aas (Myrtus communis)* and *tabasheer (Bambusa bambos)* are prescribed.^[20,22,29]

- **Described interventions for various stages of COVID-19 in the light of Unani medicine**

1. Exposed asymptomatic (quarantined): Home stay, air purification with *Loban* or *Saad Kofi*, use of *Joshandah (Unnab, Sapistan, Bahidana, Mulethi, Gilo, Zanjbeel, Filfil Daraz)* along with *Khameera Marwareed*, and inhalation with *Arq-e-Ajeeb*.

2. With mild COVID-19 symptoms: Use *Joshandah (Mulethi, Gilo, Tulsi, Kalonji, Zanjbeel, Filfil Daraz, Chiraita, Shahtara)* along with *Khameera Marwareed, Habb-e-Bukhar* and inhalation with *Arq-e-Ajeeb*.

3. With moderate to severe COVID-19 symptoms: Use *Joshandah (Mulethi, Gilo, Tulsi, Zanjabeel, Filfil Daraz, Chiraita, Shahtara, Afsanteen, Zafran)* along with *Khameera Marwareed, Habbe-e-Bukhar, Habb-e-Surfa, Chaiwanprash* and inhalation with *Arq-e-Ajeeb*.^[20,29]

- **Drugs recommended for local use**

1. *Khayar shambar (Cassia fistula)*: 10-20 gm (pulp) for gargle.^[29]

Gargling with a solution of *sumaq (Rhus coriaria L.)*, *rub-e-toot (Morus nigra L.)*, *rub-e-jauz (Juglans regia L.)* and *arq-e-gulab (Rosa damascena)* before sleep is advised.^[23]

2. If pneumonia or pleurisy occurs, *qairooti aarad karsana* (10 g), Aloe vera (1 g), *C. sativus* (1 g) are crushed, mixed and warmed slightly, then they are applied on the chest wall.^[19]
3. In case of respiratory discomfort, local application of *Roghan-e-Babuna Sada* on chest is advocated (in quantity sufficient).^[29]
4. *Arq-e-Ajeeb* 2-5 drops for steam inhalation. The drug can be taken orally with water, applied locally, as well as in the steam.^[20,29]

CONCLUSION

Presently, in the absence of any decisive treatment available for Covid-19, stress is being laid on traditional medicine systems for providing the necessary protection, health promotion, immune modulation and use of drugs (single and compound formulations) based on presentation of the symptoms. Concepts of sanitation, isolation, air purification and immune-modulation described in Unani medicine remain the basic tenets of infection containment in the contemporary preventive medicine. These may be effective not only for preventing and decreasing the susceptibility of getting involved in disease but also managing this disease. Various unani drugs described above have potency to overcome this burden as these drugs have been used in unani system of medicine for enhancing immunity and for infectious diseases. Our review suggests that proactive researches on Unani medicines may generate credible evidence regarding their role in health promotion, disease prevention and combating this condition.

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