

Corona Virus and Traditional Approach for Developing Immunity through Unani Herbal Medicine

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ABSTRACT

Till date four coronaviruses are found to exist i.e. human coronavirus 229E (HCoV-229E), HCoV-OC43, severe acute respiratory syndrome (SARS) associated coronavirus (SARS-CoV), fourth human coronavirus, HCoV-NL63 has been reported from a seven-month-old child with bronchiolitis and conjunctival inflammation. Coronaviruses, a genus of the coronaviridae family, are enveloped viruses with large plus-strand RNA genome. The genomic RNA is 27-32 kb in size, capped and polyadenylated. After detailed and extensive research coronaviruses have been found in rats, mice, chickens, swine cattle, horses, dog, cats, rabbits, humans and can cause a wide variety of diseases including gastroenteritis and respiratory tract diseases. The most recent found SARS-CoV can lead to life threatening pneumonia and is the most pathogenic human coronavirus identified so far. This fatal and highly contagious virus is likely to decide in an animal reservoir and resulted in recent epidemic in humans through zoonotic transmission.

Key words: COVID-19; Corona Virus; Unani Medicine; Immunomodulator drug; Herbal Medicine; SARS CoV-2

INTRODUCTION

Corona virus disease known as COVID-19 is a highly contagious disease caused by coronavirus [1]. This disease can affect people of all ages however older people immunocompromised people and people with comorbidities like diabetes, chronic respiratory disease and cardiovascular disease are more likely to develop complications and may die. COVID-19 virus primarily spreads through droplet infection of infected person by coughing or sneezing [2,3]. The virus survives on the surface for few hours and hence public transport system, hospitals, religious places and educational institutes are considered at high risk. The common symptoms include cough, pyrexia (high grade fever) [4,5] usually dry in nature, tiredness, shortness of breath [6,7]. The other associated symptoms can be myalgia, sore throat, diarrhoea [8-12]. In most of the cases the symptoms are mild like fever, cough and sore throat or like other viral disease like influenza [13]. However, in small percentage of patients the disease progresses to pneumonia and complicates into multi-organ failure [14,15]. It is observed that most of the deaths occur in elderly people with age group above 60 years and immune compromised people. Children are found to be relatively less infected by 1-2 % corona virus [16-18].

Antiviral drugs like Remdesivir, Oseltamivir, lopinavir and ritonavir are found effective against the corona virus and are still under trial [19-24].

Pathophysiology

Corona viruses are enveloped single stranded RNA viruses found in birds, mammals and humans and are responsible for pulmonary, hepatic, central nervous system and intestinal disease. The closest animal coronavirus by genetic sequence is a bat. Corona virus and this is most probably the only origin of the virus [25].

Aetiology

SARS CoV -2 is the cause (WHO) of COVID-19 It is member of beta coronavirus genus, genera of corona varied family.

Six coronaviruses are found to cause human disease. Two are zoonoses SARS-CoV and MERS-CoV. Both of the viruses are reported to be almost fatal, and rest four viruses usually cause common cold [26,27].

Transmission

Since corona virus originate from animals but covid-19 is not considered a direct zoonosis as its transmission is now human to human. It is initially transmitted through droplet infection by coughing or sneezing of an infected person, the way common cold transmits. It gets its cellular entry by attachment of its spike protein to the angiotensin- converting enzyme-2 (ACE-2) receptor. This receptor is found on alveolar cells of the lung epithelium resulting

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in the respiratory symptoms as the commonest presentation of CoVID-19 [28].

The viruses use a special surface glycoprotein known as peplomer to attach to ACE2 and enter the host cell. The virus invades the human gut as ACE2 is abundantly produced in the glandular cells of duodenal, gastric, rectal epithelium [25,26]. Endothelia cells and enterocytes of the small intestine. It is important put forth that the corona virus has been found positive in faces of 53% [25] of hospitalised people. It is also observed that anal samples are more positive than oral one [27]. The virus was found in gastrointestinal tract though patient did not found any chest symptoms. This indicates that the virus can directly involve the gastrointestinal tract and there is potential feco-oral transmission possibility for long time even if the chest symptoms are over [25].

Sign and symptoms

It is important to know that those infected with novel coronavirus-2019 may be asymptomatic or develop only flue like symptomatic [28-32]. Symptoms and signs may be mild or severe and include;

- Fever (85-90%) • Cough (65-70%) • fatigue (35-40%) • Sputum production (30-35%) • Shortness of breath (15-20%)
- Myalgia / arthralgia (10-25%)
- Headache (10-15%) • sore throat (10-15%) • Chills (10-12%) • Pleuritic pain
- Nausea, vomiting, nasal congestion (<10%), diarrhoea (<5%) [29] And some cases may develop palpitations, chest tightness [30], anosmia, and dysphasia [33-35].

Critical symptoms include difficulty in breathing, persistent chest pain, confusion, difficulty in walking and bluish face or lips due to anoxia. The lungs are the organs usually affected as the virus accesses host cells via the enzyme ACE, which is most abundant in the type-II alveolar cells of the lungs [35].

MATERIAL & METHODS

In corona virus infection the severity of disease is purely dependent on patient's immune competence. Here in Unani System of medicine a variety of natural resources in the form of herbal medicine and food supplements are available and clinically time tested to boost the immunity and to produce the sense of wellbeing. This research article has been an attempt to provide the knowledge about the use of natural treasures for developing the immunity and to maintain the state of wellbeing during the corona virus pandemic and otherwise.

Protective equipment

1. Eye protecting goggles
2. N95 face mask with respirator
3. Complete PPE suit which water proof and fire proof also.
4. Thick medical gloves
5. Gown
6. Face shield / vibors [36-40]

Facility of mechanical ventilation

A small percentage of the patients need artificial respiratory support [41,42]. However it has been noted that the invasive local

mechanical ventilation limits the spread of aerosolized transmission vectors [41]. In Wuhan usually geriatric cases of COVID positive patients needed the ventilation support in ICU, but in Italy and California the young adults were mostly affected by the disease and needed mechanical ventilation in ICU.

Investigation and diagnosis of corona

Among several testing methods the WHO most recommended test is real-time reverse transcription polymerase chain reaction (rRT-PCR) [43]. Here the nasopharyngeal swab or sputum sample is taken, and the results are expected within few hours to two days [44,45]. Bilateral and peripheral ground glass opacities are the most diagnostic CT findings. Consolidation, linear opacities and reverse halo sign are also well-known radiological findings.

Preventive measures

The majors to reduce the chances of infection are avoiding contact with the people which is best possible by staying at home avoid crowded place, frequent washing of hand with soap and using sanitizer after touching different objects, covering the nose and mouth with tissue while sneezing or coughing [46]. Avoid touching nose, mouth and eye with unhygienic hands [46-48]. Practice social distancing and it is better to close the schools and work place so that the large number of people may not come out of home and get mingled and ultimately infected [49,50]. WHO recommended use of masks when a person is coughing or sneezing or when a worker is delivering the services to suspected infectious patients? Use of PPE suits of 120 GSM are recommended for front line workers with N95 mask and face shield.

Food and beverage enriched with natural herbs recommended for daily use for boosting immunity and maintaining proper health

1. Breakfast with herbal tea enriched with Mulaithi, Zafran, Tulsi, Dalchini along with Honey sandwich.
2. Milk curcumin shake to be kept as major meal in lunch.
3. Decoction of Mako, Kasni, Baranjasif, Sapistan, Tukhm- e-Sambhalu, Tukm-e-Hulba and Kalonji < 15 ml of this decoction is given in evening after lite dinner with mixed vegetables and fresh fruit.
4. 100 ml of goat milk is given at bed time.

(Table 1)

Prognosis

The intensity of COVID-19 symptomatology varies from patients to patients and also from one country to another. Now a days it is believed that this virus is having multiple strains and the strains affecting Indian population is observed to be less virulent. Some patients have simple flu like symptoms and the patients even does not pay any attention to it, while as mild cases recover is about two weeks and patients who are severe may take about six weeks to recover. In Wuhan it has been experienced that young adults mostly recovered while are the geriatric patients were subjected that the death. However, in Italy and USA. The young adult also was a major percentage of mortality observed. In India few pregnant ladies and new born where also found positive.

In complicated cases the virus affects the lungs resulting pneumonia progressing to acute respiratory distress syndrome leading to respiratory failure [149,150] sepsis, multiorgan failure, clotting

Table 1: Prescribed Unani Drugs for SARS-CoV-2 like symptoms in Classical Unani literature

S.No.	Unani Name	Scientific Name	Unani Pharmacopoeias action	Modes of Use	References
1	Aabnoos	Diospyros ebumum	Contains essential oils	Fumigation	[51,52]
2	Abhal	Juniperus communis	Volatile oil contains terpenes	Fumigation	[53,54]
3	Amaltas	Cassia fistula	Immunomodulatory, antioxidant, hepatoprotective	Decoction	[55,56]
4	Amber	Liquidambar acalycina	Contains diterpenoids and triterpenoidsa	Fumigation	[52,57]
5	Amla	Emblica Officinalis Gaertn	Immune modulator, anti-inflammatory, antimicrobial, antioxidant.	Orally as murabba	[58-60]
6	Anar	Punica granatum	Anti-microbial, anti-fungal, anti-viral, antioxidant	Orally as fruit	[56,61]
7	Arq-e-Gulab	Rosa damascena	Antioxidant; contains alcohols	Spray on surroundings	[52,62]
8	Asgandh	Withania somnifera	Immune modulator, anti-inflammatory, antidepressant, anti-influenza.	Decoction	[58, 63-67]
9	Banafsha	Viola odorata	Anti-microbial, anti-fungal	Decoction	[56,68]
11	Behidana	Cydonia oblonga	Anti-oxidant	Decoction	[69,70]
12	Chal-e-konain	Cinchona officinalis	Immune modulator, antimicrobial, anti-inflammatory,	Decoction	[71,72]
13	Darchini	Cinnamomum verum	Immune modulator, bronchodilator	Decoction/ Tea	[73]
14	Elwa	Aloe vera	Anti-inflammatory	Local application on chest with cow ghee	[54,74]
16	Giloy	Tinospora cordifolia	Immune modulator, anti-inflammatory, antimicrobial, antipyretic	Decoction	[58, 75-88]
17	Habb-ulaas	Myrtus communis	Decrease intestinal motility, anti-oxidant	Decoction	[54,89]
18	Halela	Terminalia chebula	Anti-bacterial	Decoction	[56,90]
19	Izkhar	Cymbopogon jwarancusa	Insect repellent	Fumigation	[52,91]
20	Kafoor	Cinnamomum camphora	Insecticidal, acaricidal	Fumigation	[54,92,93]
21	Kalonji	Nigella sativa	Immune modulator, anti-inflammatory, antimicrobial, antiviral	Decoction	[11,58,94-105]
22	Khaksi	Sisymbrium adenophorum	Anti-microorganism (anti-bacterial)	Use after preparation of decoction	[54,106]
23	Kundur	Boswellia serrata	Reduction of airborne bacteria	Fumigation	[56,107]
24	Loban	Styrax benzoides	Reduction of air-borne bacteria	Fumigation	[54,107,108]
25	Mastagi	Pistacia lentiscus	Insecticidal	Fumigation	[52,108]
26	Mulaithi	Glycyrrhiza Glabra	Immune modulator, antimicrobial, antiviral, expectorant, antipyretic	Decoction	[58,109-121]
27	Neem	Azadirachta indica	Immune modulator, anti-inflammatory, antimicrobial, antipyretic	Decoction / as mishwaq	[58, 122-130]
28	Ood	Paeonia emodi	Contains essential oil having salicylaldehyde, trans-myrtanol	Fumigation	[56,131]
30	Qust	Saussurea costus	Insect repellent and toxic	Fumigation	[52,132]
31	Roghan-e-Zaitoon	Olea europaea	Leaves and oil contain triterpenoidsa	Fumigation	[52,133]
32	Sandal safaid	Santalum album	Insecticidal,anti-microbial	Fumigation	[54,134]
33	Sandroos	Hymenaea verrucosa	Contains diterpenoidsa	Fumigation	[69,135]
34	Sapistan	Cordia dichotoma	Anti-bacterial, anti-microbial, anti-oxidant, anti-ulcer on gastric mucosa	Decoction	[54,136]
35	Sirka	Acetic acid (vinegar)	Antimicrobial, antioxidant, anti-obesity	Fumigation/ spray	[52,137,138]
36	Tabasheer	Bambusa bambos	Anti-helminthic, anti-inflammatory, anti-dirrhoeal	Decoction	[139,140]
37	Toot siyaah	Morus nigra	Anti-inflammatory, antimicrobial	For gargle	[52,141]
38	Tukhm-e-kahu	Lactuca sativa	Anti-inflammatory, anti-diabetic,nutritive	Decoction	[54,142]
39	Turanjabeen	Alhagi pseudalhagi	Anti-microbial, anti-oxidant, hepatoprotective, anti-pyretic	Decoction	[56,143]
40	Turmeric	Curcuma longa	Immune modulator, antimicrobial, anti-inflammatory, antiviral	Use with milk	[144]
41	Unnab	Ziziphus jujube	Anti-proliferative on some influenza viruses	Decoction	[139,145]

			Anti-oxidant		
42	Zafran	Crocus sativus	Immune modulator, anti-inflammatory, expectorant, antimicrobial	Use with milk	[56,139,144,146,147]
43	Zanjabeel	Zingiber officinale	Insecticidal and insect repellent	Use with tea	[56,148]

abnormalities. Comorbidity like diabetes mellitus, cardio vascular disease and hypertension trigger the mortality rate through the world.

Histopathological examination of post-mortem lung samples shows diffused alveolar damage with cellular fibromyxoid exudates in both lungs. As of now it is clinically observed that age, virulence of the viral strain and comorbidity plays a vital role of predicting the prognosis of disease.

DISCUSSION

Like other viral infection corona virus is challenged to the medical fraternity. Since the mode of transmission of this virus is poorly understood, a lot of difficulties are being faced in controlling the outbreak of this pandemic infection. Doctors and scientists are working hard in finding the effective drug against the corona. Multiple animal trials have been conducted to produce the vaccine against this virus, but the human trails are yet to be successfully completed. Medicine like chloroquine and hydroxychloroquine was initially considered moderately effective but by the advent of remdesivir and favipiravir the chloroquine is less in use now a days. Presently dexamethasone is found much effective in controlling the symptoms of corona virus and simultaneously plasma therapy is also proving much effective.

CONCLUSION

Since there is no definite treatment till date so it in finally concluded that corona virus pandemic can be only controlled by social distancing and wearing the mask to avoid the contaminated aerosols. The same is possible if people are educated through social and print media and by providing the essential logistics needed to maintain the personal hygiene. More over clinically it is observed that immunity has a prominent role to play in combating the corona virus symptoms and for the same immunoboosting herbs are recommended for sound health.

Ethical clearance

There is no need of IEC clearance because this article /paper are a literature review (no interventional).

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Conflict of interest

The authors have no any conflict of interest

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