



AYURVEDIC UNDERSTANDING & PREVENTIVE MEASURES OF COVID-19: AN OVERVIEW

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ABSTRACT

The world community is facing a pandemic of COVID -19, which is caused by infection of novel corona virus-2. The disease has spread globally with a total of 27.2 Cr confirmed cases, 53.3 L deaths and 24.3 Cr recovered as of December 13. Primarily; it involves the respiratory system and in due course of time affects the other systems too. The pathophysiology and management are still evolving in modern medicine, while developments of vaccine are under the way. As per Ayurveda, it is type of *Aupasargikaroga* (infectious disease) that is *Sankramakaroga* (communicable disease) in nature and later on it may derange the basic matrix of bio-humours and alter the status of *Agnis* (bio-fires) and *Ojas* (immune strength). In view of this, different treatments guidelines have been recommended in the classics of Ayurveda by considering the genetic constitution (*Prakriti*), *kala*, *bala* and other epigenetic factors of the patient. Besides, specific recommendations for *Ahara* (diet), *Nidra* (sleep) and *Brahmacharya* (code of conduct related to mental and physical activities) have also been mentioned to target physical, mental, social and spiritual health. In this context authors have tried to explore the preventive aspects which are feasible for general public to become free from COVID-19 through Ayurveda.

KEYWORDS : Ayurveda, Aupasargika roga, COVID-19, Pandemic, Plant Science, Sankramakaroga, Traditional medicine, SARS-Cov-2.

INTRODUCTION:

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus, known as SARS-CoV-2 virus, which is Global pandemic in nature. The disease Covid-19 has now wide spread in India with more than 27.2 cr confirmed cases and 53.3 L deaths have been reported as of 13 December 2021 (Aarogya Setu app). All over the World, health department has focused on various approaches to control its community transmission. The known person having contact and travel history from the infected area or persons are having with symptoms of fever, cough, shortness of breath and lower respiratory illness to be confirmed by RT PCR tests. In fact, there is no specific treatment, but its early diagnosis, based on symptoms, and their management has shown promising results. As of now WHO has recommended for real-time reverse transcriptase PCR (RT-PCR) as the confirmation test, but because of limited laboratory facilities and cost factor, other tests like point-of-care molecular or antigen tests are in practice. They are not highly precised, but these serological tests are good to predict the disease-spread and other epidemiological factors. Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people, immune-compromised individuals and those with underlying medical problems like cardiovascular disease, diabetes mellitus, chronic respiratory diseases and cancer are more likely to develop serious illness¹.

In one of the study, the patients with severe respiratory disease were given hospitalization and persons with mild symptoms out of which 23% cases were found positive for influenza, 11% for COVID and remaining had non-viral respiratory infections². Further, as nasal transmission of SARS-CoV-2 is more prominent, so high dose metered-dose inhalers (MDI) therapy followed by systemic therapy has been recommended along with use of nebulisers are required to counteract the diathesis of disease³.

Severe COVID-19 infection is reported to spread to other organs like heart, liver, nervous system and kidney. The blood coagulation has also been reported. This infection is more severe and lives threatening in old age and persons who are already having diseases like diabetes mellitus, hypertension, chronic kidney disease, cancer etc. Since the SARS-CoV-2 enters in the cell through ACE-2 (angiotensin-converting enzyme-2) receptor, so it is speculated that patients of blood pressure and kidney disease may be more prone to severe symptoms of COVID infection. Persons on treatment with immune-suppressants and under curative-intent lung radiotherapy are also more prone to infection but no significant data is available⁴.

The Acute Respiratory Distress Syndrome (ARDS) in severe patients of COVID-19 is another important issue. ARDS usually appears in patients of multi-organ failure or septicaemia and always difficult to manage, but use of single intravenous infusion of Mesenchymal Stromal Cells (MSCs) over traditional line of treatment by using steroids has shown promising results⁵.

Convalescent plasma (CP) has been used in prevention and management of infectious diseases since early 20th century. The CP is obtained using aphaeresis in survivors with prior infections caused by pathogens of interest in which antibodies against the causal agent of disease are developed. The major target is to neutralize the pathogen for its eradication. It has been considered as an emergency intervention in several pandemics infections including SARS-Cov-2^{6,7,8}. The precautions like physical distancing, use of masks and hand sanitizer imparts or using an alcohol based rub frequently and not touching the face imparts significant benefits for its prevention. The current researches and therapeutic strategies for COVID-19 have focused on therapeutic agents to attack the virus or immunize against it via the vaccine. Ayurveda has laid down an emphasis more on host and recommends measures

for a healthy lifestyle rather than the mere prescription of medicine.⁹

The concept of mind and body strength to fight against various stressors and infections is a cornerstone of Ayurveda. In this concern concept of immune power (*vyadhikshamatva*) of Ayurveda play an important role to prevent diseases and arrest its progress¹⁰, *Kalaja* (chronobiologic), and *Yuktikrita* (acquired), which are very near to innate and acquired immunity of contemporary science. Primarily the preventive measures of Ayurveda moving around promotion and preservation of health through following the personalized regimens as described in the context of (*Diurnal regimens*), (*Nocturnal regimens*) and (*Seasonal regimens*), which is based on the principles of host and environmental factors. Further, therapeutic and preventive biopurificatory measures have been described to detoxifying the body and certain *Rasayanas* (drug and non-drug measures) are advocated to adopt daily basis to become free from ailments. Beside this, several local and systemic measures have been described to manage respiratory disorders and to boost their immune strength. The whole preventive and therapeutic measures of Ayurveda are based on individual genetic basis, known as *Prakriti* i.e. body constitution, which is categorized as *Deha* and *Manas prakritis*¹¹.

In this context, several preventive measures are described below may be useful to prevent the occurrence of Covid-19 in healthy population and as an adjuvant with ongoing contemporary treatment in patient of Covid-19.

MATERIALS AND METHODS

A community driven approach was used for identifying key studies for this article. A team of researchers reviewed the Ayurvedic & related contemporary literature to Covid-19 and identified additional papers from different data sources to laid dawn an overview on Ayurvedic understanding and preventive strategies of Covid-19.

Ayurvedic understanding of COVID-19

Acharya Sushruta has rightly conceived an idea that vitiation of *doshas* (bio-humours) plays a key role to the genesis of any kind of diseases¹². Hence, symptoms of vitiation of specific *doshas* kept in mind at the time of management of diseases. As per Acharya Charaka, diseases are innumerable and the naming of every disease is not possible. Such types of diseases are to be managed after examining the involved *dosha*(bio-humours), *dushya*(which gets vitiated), *srotas* (body channels), *adhishthana*(of origin of disease), along with *Prakriti* (constitution) *agni* & *ojas*(bio-fire and strength) status of patients and other factors involved in their pathophysiology¹³ at the time of management of COVID-19 patient.

The present pandemic Covid- 19 may be considered as an *Aupasargika Roga* (infectious disease), which is *Sankramaka* (communicable) in nature. The involvement of virus is the primary event in terms of *Upasarga* (infection) in patient who is immune compromised followed by involvement of other bio-factors^{14,15}. *Acharya Dalhana* has mentioned that involvement of *kaphadosha* appear as primary event in *Sankramakaroga* that spreads especially through nasal cavity causing dry cough, nasal congestion, loss of smell, fever, tiredness etc¹⁶. So, without making a debate on to the nomenclature of the disease, the management of *Agantuja vikara* (exogenous disorder) should be done on the lines of *Nijavikara* (endogenous disorder)¹⁷.

In short Covid-19 disease is surfaced to accumulation and aggravation of *KaphaVata*, followed by involvement of *Pittadosha* within the *Pranavaha srotas* (channels carrying *prana* i.e. oxygen). Further, it has been said that the target tissues (*dushya*) for local and distant spread of infection in the body includes, blood (*rasa* and *rakta*) at primary stage.

Overall there is report of lowering of metabolic process in all the tissues, specially the low activity of digestive system (*Jatharagani*- GI biofire) and due to this genesis of *Ama* like reactive species in the systems takes place. *Ama* gets accumulated in the cells and tissues, further blocks the channels (such as *Rasavaha* (channels carrying nutrient fluids), *Raktavaha* (channels carrying blood tissue), *Annavaha* (digestive tract), *Purishavaha* (channels in which faeces is formed and excreted) and receptors, which has been defined in *Ayurveda* as '*Srotavarodha*'. In case of nCOVID-19, obstruction in the *Pranavaha srotas*(respiratory system) appears as primary event. This obstruction induces abnormality in the *Kapha-Vatadosha* to a greater extent, which may lead to biochemical changes in all tissues in association with *Pitta dosha*. The component of pathogenesis may be summarised as below in a Table-1.

Table- 1: Component of pathogenesis

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| 1. Primary event- <i>Upasarga</i> of Novel corona virus |
| 2. Secondary event- <i>Dosha-Kapha-Vatadosha</i> followed by <i>Pitta Dosha</i> <i>Dushya-Rasa, Rakta</i> <i>Srotas</i> - Primary- <i>Pranavaha</i> , Secondary- <i>Rasavaha</i> , <i>raktavaha</i> , <i>mutravaha</i> , <i>purishavaha</i> <i>Adhishthana</i> - <i>Nasa, Urasa</i> <i>Agni status</i> - Hypo-functioning <i>Ojas status</i> - reduced <i>Vyadhivabhava</i> - <i>Ashukari</i> (acute onset) <i>Sadhyasadhya</i> - <i>Sadhyata</i> - curable in patient having good immune strength <i>Asadhyata</i> - incurable or difficult to be cured in patients having poor immune strength or patients associated with comorbid clinical conditions. |

Acharya S cordifolia Linn.), *Amalaki* (*Emblia officinalis* Gaertn.), *Ashwagandha* (*Withania somnifera* Linn.), *Yashtimadhu* (*Glycyrrhiza glabra* Linn.), *Draksha* (*Vitis vinifera* Linn.), *Kharjura* (*Phoenix sylvestris* Roxb.), *Shatavari* (*Asparagus racemosus* Linn.) etc. herbs singly or collectively possess *Vishaghna*, *Krimighna*, *Rakshoghna* and *Bhutaghna* action may be prescribed. *Rasayana* drugs of Ayurveda have been found to be effective in immunomodulation and restoration of immune homeostasis³⁸ along with majority of above mentioned drugs act as potent immunomodulatory and antistress^{37,38}. Hence, selected Ayurvedic drugs may be used as prophylaxis and adjunct treatment of corona virus infection.

Use of compound formulation- Formulation such as *Chyavanaprasha* (CSChiS -1/1/ 62-74), *Brahma Rasayana* (CSChi.-1/1/41-57), *Amalaki Rasayana* (*BR-Rasayana Prakarana*, 73/25) etc are to be used on regular basis as *Nityasevya Rasayana*, which surely strengthen the immune strength.

V. Other preventive measures

Dhoopana Karma* (medicated fumigation)-Dhoopana Karma* is used in various purposes since Vedic period for purification of air, house and different places. Drugs such as- *Rala* (*Shorea robusta* Gaetm.), *Kapura* (*Cinnamomum camphora* Nees. & Eberm), *Jatamansi*(*Nardostachys jatamansi* DC.), *Yavani* (*Trachyspermum ammi* Linn.), *Laksha* (*Laccifer lacca* Kerr.), *Ativisha* (*Aconitum heterophyllum* Wall.), *Badi-ela* (*Amomum subulatum* Roxb.), *Tagara* (*Velerina wallichii* DC.), *Priyangu* (*Callicarpa macrophylla*Vahl.), *Lobana* (*Styrax benzoin* Dryand.) etc with *Guggulu* (*Commiphora mukul* Hook ex Stocks) are used as *Dhoopana dravyas* as per availability of the drugs.

Most of the *dhoopana dravyas* contains essential oils, which are volatile in nature. It creates an aseptic environment, kills microbes and thus, prevents opportunistic infections. If volatile substances are inhaled, it interferes the multiplication of micro-organism in lungs and thus reduces the microbial load^{39,40,41}. Besides, *dhoopana* also help in inhaling the fumes of these medicinal plants, which is considered under *Nasya*

chikitsa. Various phytochemicals like luteolin have shown antioxidant, anti-inflammatory, antimicrobial, and neuroprotective activities through inhalation of their vapor or smoke. Various odorants have been developed. These molecules bind to the odorant receptors and induce signaling pathways in the olfactory sensory neurons, and transmit electrical signals to the brain; finally controlling the neuroendocrine system⁴². This process can be compared to the topical steroidal anti-inflammatory drugs, such as glucocorticoids etc. which are routinely prescribed for treating upper airway inflammatory conditions, such as chronic rhinosinusitis⁴³.

- **Use of herbal disinfectants and sanitizers:** Drugs belongs to *Vishaghna dravyas* like *Haridra* (*Curcuma longa* Linn.), *Nimba* (*Azadirachta indica* A. juss), *Madayantika* (*Lawsonia inermis* Linn.), *Shirisha* (*Albizia lebbek* Benth) etc^{44,45,46,47} are used as disinfectant. Sanitizers a substance or fluid designed to kill germs on skin and objects. Hands are the most common mode of transmission of pathogens. Hence use of above drugs as hand sanitizer can prevent health care-associated infections⁴⁸.
- **Kavala/Gandusha** (mouth gargle and rinse with medicated liquid)-The oils or oily decoctions clean the oral cavity, pharynx, and tonsillar area and are likely to coat the mucosa as biofilm and induce additional immunomodulatory, antioxidant, and antimicrobial benefits⁴⁹. The paramount role of host mucosal immunity in controlling infectious agents is well known⁵⁰. Turmeric (*Curcuma longa*) rhizome, *Yashtimadhu* (*Glycyrrhiza glabra*) stem, *Neema* (*Azadirachta indica*) and catechu (*Acacia arabica*) barks, and natural salt may be used to prepare medicated water/solutions for gargles/mouth rinse. Gargles with above medicated decoctions have demonstrated beneficial effects in xerostomia (dry mouth), postoperative sore throat, oral ulcers, gingivitis and bacterial growth⁵¹. Oil pulling has been used extensively as a traditional Indian folk remedy for many years to prevent decay, oral malodor, bleeding gums, dryness of throat, cracked lips and for strengthening teeth, gums and the jaw^{52,53,54}. The oil pulling with sesame oil showed a reduction in the plaque index, modified gingival scores, and total colony count of aerobic microorganisms in the plaque of adolescents with plaque-induced gingivitis⁵⁵.
- **Nasya Karma** (errhine therapy)-*Anutaila*, *Narikelataila*, *Sarshapataila*, *Goghrita*, *Shadabindutaila* etc are used for *Nasya karma*^{56,57}. Due to lipid in nature *Nasya karma* may interfere to the cell membrane of virus and it check the replication of virus at nasal site and thus reduces viral load and severity of infection. Researchers of Traditional Chinese Medicine have already proposed the use of nasal oil application for preventing SARS-COV-2 infection⁵⁸.

CONCLUSION

The conventional medical care is not satisfactory for effective management of nCOVID-19. Now a day's people are overstressed by the compulsions of social distancing, physical distancing and hand hygiene measures. People are seeking comfort and support in some of the deeply rooted traditional practices that may protect them from the infection and its associated clinical conditions. The researchers of biomedical sciences are inclined to develop vaccines or to develop safe and effective remedial measures from traditional medical resources including Ayurveda. Ayurveda has strongly emphasized on prevention as its first objective followed by cure of ailment, which is based on theory of *Pinda* and *Brahmanda* i.e. host & environment. The simple and feasible measures based on Ayurveda as mentioned above surely check the progression of nCovid-19 in masses and can be also used as adjuvant with modern medicine during and after post recovery from disease. There is a need to promote above

preventive measures in the society through health awareness program, electronic and print media. Further, these interventions appear as promising measures for large-scale because of its feasibility, affordability and acceptability in masses. Thus, we can say that Ayurveda have a potential role to sensitize the society in positive manner for optimum health. The Ministry of AYUSH, Government of India, also has already issued a very useful advisory in the context of nCovid-19⁵⁹.

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Declaration of competing interest

Nil

Ethical approval

Ethical approval not required

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