



AN APPROACH TOWARDS THE DIAGNOSIS AND MANAGEMENT OF COVID 19 AS PER AYURVEDA

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ABSTRACT

The world community is facing an unprecedented pandemic of novel coronavirus disease (COVID-19) caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV- 2). SARS CoV-2, a highly infectious causative agent of this disease is transmitted through droplets, contact routes and aerosols. Even the most developed nations are having trouble limiting its spread and the disease is still spreading at an alarming rate. For filling the gaps and lacunas in the healthcare system this is high time to integrate different healthcare systems available to meet the ever-emerging health challenges. Despite worldwide efforts to contain it, the pandemic is continuing to spread for want of a clinically proven prophylaxis and therapeutic strategy. Even though no system of medicine has any evidence-based treatment for COVID-19 yet, clinical interventions are required to be put in place. *Ayurveda* has documented the first reference of epidemics as *Janapadodhwamsa* (“*Jana*” means “people” whereas the word “*Pada*” means “place of habitation” of *Jana*, any disease or conditions like natural calamities or disasters affected a *Janpad*, it was called *Janpandodhwansa*) and has given a scientific insight into its causes, effect, and prevention along with management strategies. The clinical profile of COVID-19 matches with *Vata-Kapha* dominant

Sannipataja Jwara (Fever caused by *Tridoshas*) for which detailed treatment guidelines and an array of pharmaceutical preparations are described in *Ayurvedic* literature which is being practised by qualified *Ayurvedic* physicians effectively for a long. This paper highlights the *Ayurvedic* perspective of the COVID-19 along with its aetiology, prevention, prophylaxis, and management strategies through *Ayurveda*.

Keywords: COVID-19, SARS CoV-2, *Ayurveda*, *Vata-Kaphaja Jwar*, *Janapadodhwamsa*.

INTRODUCTION

The whole world is currently facing a grave pandemic COVID-19, which has exposed the weaknesses and lacunas in the healthcare system across the globe. This serious illness which has clutched around 174.06 million people and has resulted in near 37.5 lakh deaths across 213 countries till now¹ has revealed the need for critical analysis and revamped approach towards healthcare. COVID-19 was the name given by WHO to disease caused by severe acute respiratory syndrome coronavirus 2 (SARS CoV-2) on 11th February 2020, which was first reported in the wake of an outbreak of pneumonia of unknown origin from the city of Wuhan in China on 31 December 2019. The outbreak was declared a Public Health Emergency of International Concern on 30th January 2020 and as a pandemic on 11th March 2020.² Even with so many advancements in conventional medicine and technology, the diseases like COVID19 always remain a challenge to health care machinery and cause devastating effects.

Conventional medicine has been of limited value in battling the COVID-19 crisis till date³ and off label medications found effective on earlier strains of coronavirus are being used for the treatment⁴. Variety of drugs like chloroquine, hydroxychloroquine, Lopinavir and ritonavir, Interferon beta-1a, Famotidine, Nafamostat and camostat, Ivermectin, Nitazoxanide, Corticosteroids⁵ etc. have been experimented as prophylactic as well as therapeutic agents but the majority of them were not found effective over the standard of care in trials and later few of them were discontinued by WHO on recommendations of Solidarity Trial's International Steering Committee.⁶ This crisis is a much-needed impetus to advance and explore *Ayurveda* principles and drugs for its utility to navigate through such uncharted territories of vari-

ous health challenges. Many diseases of possible infectious aetiology like *Jwara* (fever), *Visarpa* (skin lesions), *Kushtha* (skin disorder), *Masurika* (chickenpox), *Rajyakshama* (tuberculosis), *Krimi* (worms), *Aptanaka* (tetanuslike condition) etc. had been documented in *Ayurveda* texts and the majority of them had been dealt with effectively and prognosticated as curable though may be challenging to treat. Presently in COVID19, conventional drugs being tried are ones that were found effective in previous pandemics but are not approved yet. When these medicines can be used without evidence then why not *Ayurveda* drugs which are being used effectively for since long. This article is an attempt to understand COVID-19 in the light of ancient Indian medical science i.e. *Ayurveda* with management strategies to be employed in this rapidly spreading infectious disease.

DISCUSSION

According to W.H.O-Definition of COVID19

COVID-19 is a disease caused by a new coronavirus called SARS-CoV-2. WHO first learned of this new virus on 31 December 2019, following a report of a cluster of cases of 'viral pneumonia in Wuhan, People's Republic of China.

Coronavirus (CoV): Coronaviruses are large, enveloped, positive-stranded RNA viruses having the largest genome among all RNA viruses⁷ ranging from 26 to 32-kilo bases (kb) in length.⁸ Due to spike glycoproteins on its surface, they appear like crown under the electron microscope, hence are termed as a coronavirus (coronam is the Latin term for crown).⁹ They belong to the Coronaviridae family in the order Nidovirales and are classified into Alphacoronavirus, Betacoronavirus, Gammacoronavirus and Deltacoronavirus genera⁷. Severe acute respiratory syndrome

coronavirus(2)(SARS-CoV-2) belongs to the family of β - Coronaviruses. In research studies, the genome of this virus is found almost identical to that of bat coronavirus which points towards the bats being the possible natural hosts of the virus.¹⁰ Till now seven human Coronaviruses have been identified out of whom four coronaviruses namely HKU1, NL63, 229E and OC43 generally cause mild respiratory disease¹¹ whereas members of Betacoronavirus genera SARS-CoV, MERS-CoV-2 are highly pathogenic¹²

India and Covid-19: India confirmed its first case of novel coronavirus disease from the state of Kerala on 30th January 2020¹³. The government of India (GOI) took robust and courageous decisions to face the challenge and threat posed by the growing pandemic of Covid-19. Intending to contain the spread of coronavirus outbreak, GOI enforced the largest nationwide strict lockdown in four phases for 68 days. Relaxation in lockdown was initiated from 1st June 2020 in a phased manner and unlocking is in its third phase till the time of data compilation¹⁴. A second wave beginning in March 2021 was much larger than the first wave with a shortage of vaccines, hospital beds, oxygen cylinders, other medicines in a part of the country.¹⁵ By the April India led the world in new and active cases. On 30 April 2021, it became the first country to report over 4,00,000 new cases in 24 hours.^{16,17} After all these strict measures number of infected individuals is still increasing at an alarming rate and till the time of writing this article, 29.3 million positive cases have been found with 10,89,248 active cases and 3,67,097 deaths. All the departments and machinery of government along with the citizens are working hard to manage the threat posed by this disease. In this hard time, the greatest burden is on the health care system of the country and health care providers are also at the highest risk of acquiring the infection. Till now no definitive treatment of Covid-19 is available¹⁸.

Scientists are digging deep to unravel the mystery behind the course of the disease to find out the variation in response to infection from person to person. The answer for all these questions lies in the principle of Ayurveda "*Purusham Purusham Veekshya*"¹⁹ that

explains the individual uniqueness, their vulnerability towards diseases and personalized management strategies. So, it is high time to mainstream AYUSH in India to meet the needs of society through customized health care^{20,21}

Vaccination Status in India: India began its vaccination programme on 16 January 2021, and by April was administering 3-4 million doses a day.^{22,23} India has authorized the British Oxford – **AstraZeneca Vaccine (Covishield)**, the **Indian BBV152(Covaxin)** vaccine and the **Russian Sputnik V vaccine** for emergency use. As of 25 May 2021, the country had administered over 200 million vaccine doses.²⁴

Transmission and Prevention

COVID-19 caused by SARS-Cov-2 is speculated to be transmitted through droplets, contact routes and aerosols generated (in specific hospital settings where procedures or support treatment that generate aerosols are performed and indoor settings with poor ventilation) from non-violent and violent expirations of SARS-CoV-2-infected people.²⁵ Transmission of SARS-CoV-2 can occur through direct, indirect, or close contact with infected people through infected secretions such as saliva and respiratory secretions or their respiratory droplets, which are expelled when an infected person coughs, sneezes, talks or sings. Fomite (contaminated surfaces) transmission may occur indirectly through touching surfaces in the immediate environment or objects contaminated with a virus from an infected person, followed by touching the mouth, nose, or eyes.

The recommendations for preventing the spread in society are frequent hand hygiene, social distancing, respiratory etiquettes, environmental cleaning, and disinfection, avoiding outdoor and indoor crowded gatherings, wearing face masks to protect others and ensuring good ventilation in any closed setting. Effective control and limiting the spread of the virus can be achieved through identifying the suspected cases, increased testing capacity, strict quarantine (self or institutional), contact tracing and their isolation.^{26,27}

Historical evidence of infections and epidemics in Ayurveda

The first documented evidence of infectious diseases in the modern medical literature is found in the writings of Hippocrates where he wrote about the means of disease spread by air, water, and places.²⁸ Documentation of epidemics in Ayurveda have been done much before Hippocrates during the Vedic or post-Vedic period under the heading of Janpandodhwansa but has never been given the credit by the scientific community in the history of epidemics. Janapadas were the realms, republics, and kingdoms of the Vedic period on the Indian subcontinent.²⁹ Term Janapada is composed of two words “Janas” and “Pada”. “Jana” means “people” whereas the word “Pada” means “place of habitation” of Jana³⁰

The earliest description of the term 'Janapada' is found in the Vedic literature Brahmanas, and post Vedic texts like Mahabharata and Ramayana.³¹ When any disease or conditions like natural calamities or disasters affected a Janpad, it was called **Janpandodhwansa**. Factors responsible for such an outbreak resulting in mass casualties are deranged Vayu (air), Jala (water), Desh (land) and Kala (seasons). These four factors are in common to habitants of an area which when vitiated are responsible for the outbreak of a disease.³² Sins of the present life and bad deeds of past life, Pragyaparadha (intellectual misconduct), Adharma (unrighteousness) have been ascribed as the root cause of such type of calamities.³³ According to Thomas Love joy, a modern-day biologist who coined the term "biological diversity", the covid-19 pandemic is the consequence of human persistent and excessive intrusion in nature and the vast illegal wildlife trade, and in particular, the wildlife markets, the wet markets of south Asia and bushmeat markets of Africa which comes under the definition of unrighteous intellectual misconduct.³⁴

Ayurvedic approach to Covid-19

Considering the mode of transmission (Oro-nasal route through droplets/hand contact), Covid-19 has *Agantuja hetu* (external cause i.e. SARS-CoV 2). Disease symptoms manifest abruptly without having the prodromal phase when the cause is *Agantuj*³⁵ and

the clinical presentation will depend upon the status of already deranged *doshas* at the site where they are maximally concentrated. After gaining entry in a host *Agantuja hetu* ultimately leads to derangement of *Sharirika dosha* (Vata, Pitta and Kapha) and gets converted to *Nija* (internal) type³⁵ following the incubation period (variable, from 2-14 days in COVID19).^{36,37} Although the route of entry of SARS-CoV-2 is Oro-nasal and it mainly hits the respiratory system, but multiple organ system involvements are seen in different hosts. SARS CoV-2 after entering the body leads to derangement of *Shareerika dosha* and manifests mainly as *Rasapradoshaja diseases* (diseases caused due to vitiation of Ras dhatu) like *Jwara* (fever) and *Arasagyata* (loss of taste)³⁸ along with *Pranavaha srotodushti* symptoms (Pulmonary symptoms) like *Shwasa* (dyspnoea) and *Kasa* (cough). *Annavaha Srotodushti* (digestive system) symptoms like *Aruchi* (anorexia), *Chardi* (vomiting) and *Purishavaha srotodushti* (excretory system) symptoms like *Atisara* (diarrhoea) are also not uncommon.³⁹ Other associated symptoms of COVID-19 are headache, body aches and arthralgia (Table-1) which are general symptoms associated with all the fevers. In the severe stage, the disease manifests as pneumonia, ARDS, shock, coagulation disorders with multi-organ failure⁵⁰ All these symptoms are described in *Jwara* under different types (Table 1) and COVID-19 can be categorized as *Vata-Kapha dominant Sannipataja Jwara* with variable involvement of *Pitta*. Hence, the line of treatment mentioned under *Jwara chikitsa* must be adopted for its management. In addition to this, principles of *Shwasa* and other diseases like *Atisara* (Diarrheal diseases), *Chardi* (Vomiting), *Raktapitta* (bleeding disorders and Coagulopathies) can be employed depending upon the presenting case. *Jwara* (fever) according to Ayurveda arises from *Amashaya* (stomach) and has been classified as a disease due to the vitiation of *Rasavaha srotas*. *Aggravated Dosha* (*Vata, Pitta or Kapha*) due to underlying aetiology, either alone or in a combination of two or three, gets mixed with the improperly formed *Rasa* (the first dhatu formed after digestion) which cause sluggish circulation and further blocks

the microchannels of *Rasa* and *Sweda* (thermoregulatory apparatus). The *Agni* (digestive fire) gets displaced out of its original site (*Paktisthana*), spreading out through the body which is not able to dissipate heat due to blocked sweat channels, causing fever.^{41,42} Moreover, displacement of *Agni* from its seat im-

pairs all the metabolic functions of the body⁴³ and leads to impaired immune response.⁴⁴ Greater the derangement of *agni* greater will be the accumulated *dosha* and poor will be the prognosis⁴⁵ as is seen in Covid-19.

Table 1: Clinical features of COVID19 as per Ayurveda

Disease condition	Clinical Manifestation
COVID-19 ⁴⁶	Fever, Cough, Fatigue, Anorexia, Shortness of breath, Myalgia Non-specific – Sore throat, nasal congestion, headache, diarrhoea, nausea and vomiting. Loss of smell and Loss of taste
<i>Vata-KaphaJwara</i> ⁴⁷	Fever, Body aches, Cough, Coryza, Headache, Muscle and joint pain
<i>VataKapha</i> dominant, Recessive <i>Pitta</i> (<i>Vata Kapholbana HeenaPitta Sannipata</i>) ⁴⁸	Cold, Cough, Anorexia, Fatigue, Thirst, Burning, Body aches
<i>TridoshajaJwara</i> (<i>VruddhaVata, Heena Kapha, Madhya Pitta</i>) ⁴⁹	Fever, Cough, Dyspnoea, Coryza, Pain in lower chest region or flanks
<i>Majjadhatugata Jwara</i> ⁵⁰	<i>Shwasa, Kasa</i> , the affliction of vital organs, Fever, Fatigue, Syncopal attacks

Treatment approach

Ayurveda primarily focuses on the preventive aspect of health through a set of guidelines mentioned under *Dinacharya* (daily regime), *Ritucharya* (seasonal regime), *Dharniya and AdharniyaVega* (suppression and non-suppression of urges), *Sadvritta and Achara Rasayana* (moral ethics) along with elaborate dietary recommendations. For therapeutic purposes, diagnostic, clinical and general, as well as disease-specific treatment guidelines, are also mentioned. As Covid-19 is *Sankramaka* (communicable) disease having *Agantuja* cause resulting into *Janapadodhwamsa* (affecting a large geographical area), it also has preventive as well as curative angles to control its spread. Self-discipline, avoiding intellectual errors (following all recommended guidelines), to remember and follow the set of guidelines mentioned for prevention (dietary, daily and seasonal regimes, moral guidelines etc.) must be practised and they become even more important during epidemics.

During Covid-19, studies have shown significant impact temporary unemployment, online classes of children, lack of physical contact with other family members, friends and colleagues, loss of nears and dears due to covid-19 has resulted into fear, worry

and stress. For minimizing the stress and anxiety truthfulness, compassion for living beings, charity, worship of God, observing moral conduct, protection of self (through various physical and spiritual methods), residing in an unaffected place (indicative of isolation), reading or listening to religious scriptures, the constant association with the righteous must be practised.

Prophylaxis

Panchkarma (Five Ayurvedic Therapeutic cleansing methods) and *Rasayana therapy* (*Immunomodulatory therapy*) are mentioned as the cornerstone prophylactic modalities in *Janpadodhwansa*.⁵¹ Seasonal *Panchakarma* is recommended to remove the excess accumulated *Doshas* from the body for maintaining health. As it is difficult to perform *Panchakarma* during the outbreak of Covid-19, the utility of *Rasayana* becomes more important as they possess nutritive, restorative and immunomodulatory properties. *Rasayana* acts as an antioxidant, anti-stress, anti-inflammatory, anti-microbial and confer immunity against diseases.⁵² Single-ingredient *Rasayana* drugs of potential benefit in Covid-19 are *Withania somnifera*, *Tinospora cordifolia*, *Asparagus racemosus*, *Phyllanthus Emblica*, *Glycyrrhiza glabra*, *Piper*

longum and are recommended for its prophylaxis and as an add-on treatment.⁵³ *Chyavanaprasam*, *Brahm Rasayana*, *Pippali Rasayana*, *Amrita Bhallataka* are also potential *Rasayana* in Covid -19.⁵⁴ *Dhupana(fumigation)* for disinfection of surroundings must be carried out with Ayurvedic drugs of antimicrobial properties⁵⁵ which might limit the spread of the virus.

Treatment:

Asymptomatic or Cases with Mild symptoms

Based On the treatment of Vata-Kapha Jwar-

Though *Langhana* (eat in minimum quantity) is the prime treatment modality for fevers in *Ayurveda* ⁵⁶, in Covid-19 it must be used judiciously ⁵⁷ *Deepana* (increasing digestive fire), *Pachana* (increasing digestive capacity) with drugs dominating *Tikta* (bitter taste) and *Katu* (pungent) *Rasa* must be given to arrest or limit the severity of the disease. A light but nutritious diet must be given to the patient. Hot water or medicated water ⁵⁸

Moderate to Severe Cases

Patients in this category must be treated on the line of treatment of *Sannipataja Jwara with Vata-Kapha dominance, Shwasa and Kasa*. Ayurvedic drugs of herbo-mineral origin with faster absorption, rapid action and better bioavailability⁵⁹ must be prioritized in the treatment plan. Patients under these categories

especially with co-morbidities require careful monitoring and an integrative treatment approach in intensive care settings must be adopted for better clinical outcomes. *Ayurvedic* drugs of significance in Covid-19 which are routinely used by qualified *Ayurveda practitioners* are recommended according to the severity of the disease in **Table 2**. *Ayurvedic* drugs as add on therapy to recommended conventional treatment will result in a better outcome as was observed with TCM.

Post-Covid care

Fatigue and dyspnoea are persistent symptoms that are experienced after acute Covid-19.⁶⁰ With a large number of recovered Covid-19 cases,⁶¹ a great pool of patients will be created who will likely end up in symptom complex as that of chronic post-SARS syndrome which includes fatigue, pain, weakness, depression and sleeps disturbance.⁶² These patients can very well be managed using principles of *Satvavjaya*(psychological treatment),^{63,64} *Unmada* (a state of disturbed mental function),⁶⁵ and *Rasayana*.⁶⁶ *Ayurvedic* therapeutic procedures like *Abhyanga* (oil massage to whole body), *Swedana* (Steam bath), *Avghana* (tub bath), *Vasti* (enema), *Nasya* (drug administration by nasal route), *Shirodhara* (dripping medicated oil or liquids on the forehead), *Pranayama* (breathing exercises) and *Yoga* will help these patients.

Table 2: Ayurvedic Medicines for management of Covid-19

The severity of the disease	Drug Recommendations
Asymptomatic or Mild	Churna(powder) – <i>Pippalichurna, Trikatu churna, Panchkola churna, Sitopaladi Churna, Talisadi churna Sudarshan churna</i> Kashaya (decoction) – <i>Gojhivadi, Bharangayadi, Kantkaryadi</i> Herbomineral - <i>Godanti mishran, Lakshmvilas Rasa, Tribhuvankirti Rasa</i> Vati (tablets) – <i>Sudarshanghan vati, Samshamni vati, Lavangadi and Vyoshadi vati</i>
Moderate	Churna – Same as in mild cases Kashaya (decoction) – <i>Shatyadivarga kashaya, Kantkaryadi, Bharangayadi</i> Vati – <i>Sanjivani vati, Sudarshanghan vati</i> Herbomineral - <i>Godanti mishran, Tribhuvankirti Rasa, Mritunjaya Rasa, Kafketu Rasa, Shwaskuthar Rasa</i> Avaleha – <i>Kantakari Avaleha, Agastya Haritaki Avaleha</i>
Severe	<i>Sanjivanivati, Hingukarpoorvati, Mritunjaya Rasa, Sameerpanag Rasa, Mala sindoor, Kasturibhairava rasa, Hema Garba Pottali, Trailokya Chintamani Ras, Suchikabharana Ras</i>
Post-COVID care	Herbomineral - <i>Vasantmalti rasa, Jayamangal rasa, Putpakvavishma Jwarantaklauha</i> Avaleha – <i>Chyavanprash Avaleha, Brahma Rasayana, Ashwagandhadi Leha, Sarpi Guda</i> Churna – <i>Sitopaladi Churna, Talisadi Churna</i> Ghrita(Ghee) – <i>Indukant Ghrita, Dhanwantari ghrita, Amritprash Ghrita, Pippalyadi Ghrita</i>

Dosing Considerations

In *Atyayika* condition (emergency) *Muhur –Muhur prayoga*⁶⁷ (frequent dosing) is suggested: *Churnas* are given in a dose of 3–4 gms in multiple doses up to 12 gms/day. While *Sudarsana churna* may be given as a *Phanta Kalpana*. *Kasayam* dosage depends upon the method of preparation. *Aristas* are given up to 50 mL/day. Except for *Kanakasava* which is given at 5–10 mL per dose twice daily. Dose of *Rasasindoora* with *navasagara* is 60–180 mg/day while *Rasasindoora* without *Navasagara* 125–500 mg/day and *Mallasindoora* – 60–120 mg/day. *Hema Garba Pottali* (with *Tamra*) 60–125 mg 6th hourly, sub-lingually. *Trailokya Chintamani Ras* -60–250 mg/day, sub-lingually; *Suchikabharana Ras* - 2–4 mg over scalp incision along with 2–4 mg orally with butter.

AYUSH initiatives during Covid-19 Pandemic

During the address to the nation, the Prime Minister of India urged the citizens to follow seven steps to fight corona⁶⁸ which included following AYUSH ministry guidelines for boosting immunity. AYUSH ministry issued an advisory to meet challenges arising out of the spread of coronavirus (Covid-19) in India⁶⁹ along with Ayurveda's immunity-boosting measures for self-care during COVID-19 crisis⁷⁰ These guidelines consist of general measures such as drinking warm water, use of spices in cooking, the practice of *Yoga, Pranayama and Asanas* for at least 30 minutes,

Ayurvedic immunity promoting measures such as the use of *Rasayana* (e.g. *Chyavanprash*), herbal decoction and turmeric milk daily once or twice. Simple *Ayurvedic* procedures such as *Pratimarsha Nasya* (nasal application of oil or ghee) and *Gandusha / Kawala* (oil pulling therapy), steam inhalation and use of clove for throat irritation.

AYUSH guidelines also included the use of *Samshamni vati* for preventive and prophylactic care, AYUSH-64, *Agastya Haritaki* and *Anu tail nasya* for symptom management of Covid like illness and as add on therapy to conventional treatment along with dietary recommendations. AYUSH ministry also took up the research-related activities and issued guide-

lines for the same based on recommendations of the interdisciplinary AYUSH R & D task force.⁷¹ For scientifically evaluating the role of AYUSH interventions, population-based AYUSH studies for prophylaxis, AYUSH interventional studies for Covid-19, stand-alone AYUSH interventional studies, integrative clinical trials and AYUSH Sanjivani application-based study for impact assessment of acceptance and usage of AYUSH advisories for its role in the prevention of Covid 19 were planned as per guidelines and are being carried out.⁷²

CONCLUSION

Infectious diseases like Covid-19, Zika virus disease, Ebola virus disease, H1N1 influenza are emerging at regular intervals that can wipe out the human generations and has unveiled the gaps in health care systems. It is high time to consider all the systems of healthcare available across the globe, study and test them scientifically to effectively control such diseases. *Ayurveda*, an ancient Indian medical wisdom having documented evidence of diseases of infectious aetiology has immense potential to contribute to society in such situations. Strong and visionary backup by the policymakers, unbiased outlook of the modern medical system and scientific community towards *Ayurveda*.

Mainstreaming AYUSH in healthcare policy with appropriate funding will pave the way forward. *Ayurveda* scholars also need to come out of the shell and develop scientific acumen by enhancing their skills through capacity building, upgrading their research skills and openness to modern science will benefit the system as well as the workforce. Scientific validation of *Ayurvedic* principles and drugs will make this science stand high in contemporary times and will help the ailing mankind but still a lot is required to be done.

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