

Ayurveda Clinical Management of Pandemic Covid-19

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ABSTRACT

Viral infections play a significant role in human illnesses. In late December 2019, a previously unidentified coronavirus, named as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 by ICTV on February 11, 2020), also named as 2019 novel coronavirus, originated from Wuhan, China, and caused outbreak in many countries. Presently, despite the advancement made in immunization and drug development, this virus lacks preventive vaccines and effective antiviral remedies. Thus, identification of specific antiviral medicine is of critical importance. However, classical *Ayurveda* preparations may play an excellent role in the management of this outbreak. *Ayurveda* has a unique method of approaching the newly detected disease. Rather than focusing on the microbial etiology, *Ayurveda* embraces a holistic technique for elaborating the details of the disease at hand. In this paper, we summarize the interpretation, diagnosis, treatment principles, and medicines described in different texts of *Ayurveda* to treat viral infections.

KEYWORDS: *Ayurveda*, *COVID-19*, *Infectious disease*, *Krimi*, *Panchakarma*, *pandemic*

INTRODUCTION

A number of viral infections are responsible for human pathogenesis comprising pandemic diseases. Rapid urbanization and increased global travel cause pandemic outbreaks, and re-emerging viruses create a serious threat to social health. Currently, a number of viruses remain without actual immunization, and a few antiviral medicines are licensed for clinical practice. The condition is further exacerbated by the latent development of drug-resistant mutants, especially when using viral enzyme-specific inhibitors, which significantly obstructs drug efficacy. Thus, there is a crucial need to develop specific antiviral drugs that are very effective and cost-effective in the treatment and control of viral infection. *Ayurveda* medicines and *Panchakarma* may provide an effective treatment for COVID-19 outbreak. In this paper, a summary of several *Ayurveda* preparations and herbal medicines against this coronavirus has been reported.

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In December 2019, an epidemic of an unknown pneumonia characterized by fever, dry cough, fatigue, and infrequent gastrointestinal symptoms happened in a seafood market in Wuhan, Hubei, China. This pandemic emerged from China and has rapidly spread to most countries in the world. It was confirmed as a pandemic by the WHO on March 11, 2020, as it has confirmed its presence in all continents except Antarctica.

Coronavirus is an enveloped, positive-sense, single-stranded RNA (ss-RNA) virus belonging to the Orthocoronavirinae subfamily of Coronaviridae family, with "crown-like" spikes on their surface. The precise source, location, and natural reservoir of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) remain uncertain, although it is believed that the virus is zoonotic, and bats may be the culprits because of the sequence identity to bat-CoV. Initially,

SARS- CoV-2 eruption was reported as limited person-to-person transmission, and a contaminated source from infected animals in the wet market may have been the common origin. But more and more evidences came out, with clusters of outbreaks among families confirming the possibility of person-to-person transmission.

SYMPTOMS OF COVID-19

The mean incubation period of COVID-19 is 5.2 days (95% confidence interval, 4.1–7.0). The symptoms begin with non-specific syndromes, comprising fever, dry cough, body pain, and fatigue. The symptoms may appear 2–14 days after exposure to the virus.

- fever
- cough
- shortness of breath or difficulty in breathing
- chills
- repeated shaking with chills
- muscle pain
- headache
- sore throat
- loss of taste or smell

These symptoms may become more severe in some people:

- trouble breathing
- confusion or inability to arouse
- persistent pain in the chest
- bluish lips and/or face
- excessive drowsiness

The most serious complication of COVID-19 is a type of pneumonia called the novel coronavirus-infected pneumonia (NCIP). So far, NCIP is the only complication specifically linked to the 2019 coronavirus. Researchers have seen the following complications in people who developed COVID-19:

- acute respiratory distress syndrome (ARDS)
- irregular heart rate (arrhythmia)
- cardiovascular shock
- severe muscle pain (myalgia)
- fatigue
- heart damage or heart attack

Commonest signs and symptoms are fever (83–98%), cough (76–82%), and shortness of breath (31–55%). There were about 15% with fever, cough, and short of breath. These symptoms are usually mild and gradually worsen. Approximately 80% of COVID-19 cases showing mild symptoms require only primary medical treatment. In rest of the 20% cases, 15% need emergency medical attention at secondary healthcare hospitals and 5% critical cases

need an intensive care and a transfer to tertiary healthcare centers equipped with an ICU. In the 5% cases needing intensive care, the disease development is gradual and takes nearly 9–10 days to progress from symptoms of upper respiratory tract infection (URTI) to ARDS. ARDS often is followed by uncorrectable hypotensive shock, multiorgan failure, and eventually death.

UNDERSTANDING JANAPADODDHWAMSA IN AYURVEDA AND COVID-19 PANDEMIC

➤ As COVID-19 has developed itself into a pandemic, affecting a large population irrespective of their physical features, dietary patterns, psychological attributes, climate, etc., Ayurveda considers it as a *Janapadoddhwansa*. The concept of epidemic/pandemic is very well defined in Ayurveda under the heading of *Janapadoddhwansa*. In Ayurveda, the destruction of mass (*Janapadoddhwansa*) is said to be caused due to the degeneration (*Dushti*) of factors like *Kala* (time/season), *Desha* (region), *Vayu* (air), and *Jala* (water), which are common to all humans. The whole population gets *Ksheena Bala* (diminished body immunity) due to the consumption of polluted water, food, and air by which the virus enters the body to produce different symptoms. This is the reason why people with varied physical dispositions get afflicted with the same disease within the same timeframe.

➤ *Acharya* Sushruta, described the concept of pandemic/ endemic in *Ritucharya* (seasonal regimen) as *Maraka* (lethal), where he explains how attacks (infections) of *Rakshasa* (viruses, bacteria) and *Dushita* (infected) air cause *Janapadoddhwansa*. Cause of *Janapadoddhwansa* are unsuitable season, wrong activities, curse of animals, demons (viruses, bacteria), disrespectful for nature and non-religious activities (killing and eating of innocent animals and birds) vitiates the environment affects nation by nation and produces breakdown of living culture produces endemic/pandemic disease. Infected people show symptoms of *Kasa* (coughing), *Shwasa* (breathlessness), *Vamana* (vomiting), *Pratishyaya* (running nose/rhinitis), *Shirovedana* (headache), and *Jwara* (fever); thus, various diseases and epidemics are manifested.

➤ *Janapadoddhwansa* in *Vasanta Ritu* (season) results in incidence of *Vata-Shlaishmika* predominant *Sannipaata Jwara* (fever). The incidence of this *Jwara* points toward the rapid and violent vitiation of *Vayu* (air), *Jala* (water),

Desha (ground) and *Kala* (time) due to the activities that can be assigned as *Prajnaaparadha*. Moreover, the predisposing factors such as old age and comorbidities like cardiovascular diseases, diabetes mellitus, respiratory diseases, hypertension, malignancies, etc., are causes of weakened *Rogi Bala*, which will result in fatality.

Krimi and the Novel Corona Virus

The concept of microorganisms has been well emphasized in Ayurveda in the context of *Krimi*, *Bhoota*, *Graha*, etc. The knowledge of three basic principles such as *Hetu* (cause), *Linga* (symptoms), and *Aushadha* (management) in *Swastha* and *Atura* is needed to treat any disease in Ayurveda. In the context of COVID-19, the cause of pandemic disease is a virus. Ayurveda classics like Charaka Samhita and Sushruta Samhita have described an infection almost like the novel coronavirus. The invisible *Raktaja Krimi* or *Kaphaja Krimi* is described as something that cannot be seen by the naked eye as they are *Maha Sukshma*. It has a round shape, heavy with *Roma* (spikes) on them. Charaka Samhita description is so close to that of the novel coronavirus. Charaka explained how *Kaphaja Krimi*, after settling in the respiratory system, creates cough, severe congestion, and breathlessness and sometimes leads to death.

These *Raktaja Krimi* cause *Dushita Rakta*, which in turn does *Avarana* (covering) of *Vata* leading to *Vranashopha*, to produce *Santapa* (burning sensations like fever), *Atidourbalya* (weakness), *Aruchi* (anorexia), *Shiroruka* (headache), and other symptoms as told in Charaka Samhita. In the context of coronavirus, *Krimi (Raktaja Krimi)* produces *Rakthadusti* by different *Doshas* to produce *Raktavarana Vata Prakopa*, leading to *Vranashopha* at *Kantha Pradesha* (viral pharyngitis); thus, there will be sore throat and throat congestion. If *Krimi* produces *Vata*-dominant *Rakta Dusti*, it shows *Vataja* symptoms like coughing, difficulty in breathing, sore throat, body ache, etc.; if *Pitta*-dominant *Rakta Dusti* occurs, it shows *Pittaja* symptoms like *Jwara*, *Daha*, *Mukhapaka*, etc. Similarly, if *Kapha*-dominant *Rakta Dusti* occurs, it shows *Kaphaja* symptoms like *Pratishyaya*, *Gaurava*, *Tandra*, *Aalasya*, throat congestion, etc. When these two or three *Doshas* are associated with each other, mixed symptoms will be produced according to the predominant *Dosha* involved. In the case of COVID-19, it occurs at throat as *Pidaka*. Probably initial *Vatakaphaja* symptoms will be predominant. Then it spreads to larynx (causes laryngitis),

trachea (causes tracheitis), bronchus (causes bronchitis), and finally to alveoli (causes pneumonia) due to *Parisarpa (Abhyantara Visarpa/Vranashopha)* nature of aggravation of *Pitta* in association with *Rakta*.

In COVID-19 infection, initially *Vata-Kapha* predominant symptoms produced, like low-grade fever (*Manda Jwara*), sneezing, and throat congestion. The infection then produced dry cough (suggesting involvement of *Vata Dosha*) and high-grade fever (*Teevra jwara*) (suggesting involvement of *Pitta Dosha*). Later on when there is involvement of alveoli, patient produces shortening of breath or breathlessness (*Shwasa*).

BHOOTAABHISHANGAJA JWARA AND SYMPTOMS OF COVID-19

COVID-19 can be grouped under the class of *Aagantuja Roga* with special reference to the *Bhootaabhishangaja Vikaara*. In *Bhootaabhishangaja Jwara*, attack of *Bhoota* (bacteria, virus, other invisible microorganism, super natural power) happens first on the body and then aggravation of the three *Doshas* occurs. This *Jwara* is transmitted from one person to other person by close contact with infected persons, touching the air which passed from them, or air contaminated with *Bhoota* or poison (*Visha*). [The management of *Aagantuja* disease should also follow the lines of *Nija vikaara* treatment. No disease can develop without involvement of *Vata*, *Pitta*, and *Kapha*. Identification of a suitable pathological model along with the associated features is very important. *Charaka* had been advised *Vishghna* medicine (anti-poisonous drugs) in the treatment of *Bhootabhishangaja Jwara*^[40] and also advised *Dhoopa* and *Anjana* in all types of *Aagantuja Jwara*, including *Bhootaabhishangaja Jwara* and when *Jwara* present only in skin.

Considering all the clinical features of COVID-19 and comparing with the clinical features mentioned in Ayurveda classics, COVID-19 can be considered as a *Vata-Kaphaja Jwara* of course, with some extent of *Pitta* involvement, in the beginning. But it obtains the status of a complete *Sannipata jwara* as disease progresses in certain groups of population. The clinical progression can be monitored as follows: symptomatic mild infection at presentation, leading to moderate disease to severe conditions, and then terminating in very fatal illness. Clinical features of *Vata-Kaphaja Jwara* and *Sannipataja Jwara* are as follows.

In Charaka Samhita, **Vata-Kapha Jwara**: *Sheeta, Gaurava, Tandra, Staimitya, Parvaruka, Shirograha, Pratishyaya, Kasa, Swedapravartam, Santapa, Madhyavega of Jwara*.^[46] **Sannipata Jwara**: *Shwasa, Kasa, Pratishyaya, Mukhashosha, Atiparshvaruka*

Samsannipata Jwara: *Kanthah Shukairivavritah, KasaShwasa, Pratata Kanthakujanam*

In Sushruta Samhita

Vata-Kapha Jwara: *Staimitya, Parvabhrda, Nidra, Gaurava, Shirograha, Pratishyaya, Kasa, Swedapravartam, Santapa, Madhyavega of Jwar*.

On other place also described *Shoola, Kasa, Kaphotklesh, Sheeta, Vepathu, Peenasa, Gaurava, Aruchi, and Vistambha*.

In Ashtanga Hridayam

Vata-Kapha Jwara: *Tapahaani, Aruchi, Parvaruka, Shiroruka, Peenasa, Shwasa, Kasa, Vibandha, Sheeta, Jadyata, Timira, Bhrama, and Tandra*.

Aaupsargika Disease of Ayurveda and Transmission of Infectious COVID-19

Healthy people can become infected with SARS-CoV-2 from already infected people and develop COVID-19 disease. The disease can spread in human being through small droplets from the nose or mouth which spread when a person with COVID-19 coughs or sneezes. These droplets land on objects and surfaces around the person. Other people can then be infected by touching those contaminated objects or surfaces, and then touching their eyes, nose, or mouth. People can also be infected if they breathe in droplets from a person with COVID-19 who coughs or sneezes in close proximity.

These types of disease are considered as *Aaupsargika Roga* (infectious disease) in Ayurveda. Sushruta had described that *Jwara, Kushtha, Shosha, and Netra Abhishyanda* is *Aaupsargika* disease and its infection is spread by direct contact with infected persons. Dalhana, the commentator of Sushruta Samhita, said that air escaped from the nose of these infected persons causes *Shwasa* (breathlessness), *Kasa* (cough), *Pratishyaya* (rhinitis), *Twak Vikara* (skin disease) *Jwara* (fever), *Masurika* (small/chicken pox), etc.^[49] *Abhishangaja Jwara* also transmitted from one person to other person by close contact with infected persons, touching the air which passed from them, or air contaminated with *Bhoota* or poison.

PROBABLE AYURVEDA SAMPRAPTI (PATHOGENESIS) OF COVID-19

Virus enters the body through nasal passage, eye conjunctiva, or mouth mucosa, settles in *Kantha Pradesha* (pharynx) for some time, mixes with body mechanism by damaging the mucosa, and starts replications. After replication in large numbers, it shows their symptoms like pharyngitis, sore throat, sneezing, dry cough, and fever. Then it moves toward trachea, causes tracheitis, and causes bronchitis which causes excessive dry cough and shortening of breath. As disease progresses, it causes pneumonia and eventually multi-organ failure or death.

Exposer to Virus/Close contact with virus
(*Bhootal Krimi/microorganism*) infected person
(**Hetu**)

Inhalation of virus by respiration or by touching the nose, eyes or mouth with infected hand

Viruses settled in throat and mouth mucosa and in pharynx starts their replications (**Sanchaya Avastha**)

Viruses damages the mucosa and enters in blood circulation causes sore throat & dry cough
(**Prakopa Avastha**)

Rakta Dushti that produces *Raktavrita Vata*

Prakopa and mild *Pitta* vitiation (**Prakopa Avastha**)

Viruses moves towards lower respiratory tract and settled in larynx produces *Vrana Shopha* at *Kantha Pradesha* then patient presents with Throat congestion, Fatigue, Mild Fever, excessive Dry cough (**Prasara Avastha**)

Viruses moves towards lower respiratory tract and settled in trachea and Bronchus and produces *Vrana shosha* in them and high grade fever, chest congestion shortening of breath etc. symptoms [(**Sthana Samshrya Avastha in Chest (Kapha Stahna-Urah Pradesha)**)]

Viruses moves towards lungs and produces *Vrana shosha* in Alveoli. Patient presents with Breathlessness and Pneumonia (**Vyakti Avastha**)

Viruses infection (*Raktaja Krimi*) invades *Yakrit & Koshtangas* produces - Anorexia, Vomiting Diarrhea and then Multi organ involvement that

produces Multi organ Failure leads to death(Bheda Avastha)

MANAGEMENT PROTOCOL OF COVID-19 THROUGH AYURVEDA

The knowledge of *Hetu* (cause), *Linga* (symptoms), and *Aushadha* (management) in healthy and diseased persons are the three basic principles needed to treat any particular disease in Ayurveda. According to Ayurveda, the line of treatment should be planned to breakdown the aetiopathogenesis (*Samprapti*) of the disease. On the basis of the above-mentioned epidemiology, pathogenesis, and clinical features of COVID-19 disease, here, a rational and acceptable proposal for interventions of Ayurveda medicines and *Panchakarma* therapy is presented. Though, it is not limited to prophylaxis only, it is also effective for the therapeutic and an integrative management of COVID-19 disease. Here, we classified the different stages of contamination and immediacy with disease among individuals. Although till date no medical system has any specific treatment for COVID-19, clinical interventions are being done worldwide. Ayurveda mediations become more relevant by the fact that there is a vast explanation of causation and management of pandemic (*Janapadodhdhwansa*) in Ayurveda.

The line of treatment for COVID-19 is as follows:

- *Nidaana Parivarjana* (moving to safe places or isolation or quarantine from infected persons/area)
- To deactivate the viruses through antiviral medicines (no specific medicine yet developed)
- To treat the symptoms of viral infections and complications on the basis of *Doshika* involvement.
- To enhance the body immunity system and body strength of infected person.
- Detoxification of body by *Shodhana* of aggravated

Doshas by *Panchakarma* treatment

- To protect the healthy persons from viral infection by increasing their immunity

The aims of Ayurveda are to preserve and retain the good health of healthy persons and to treat the diseased persons without any complications. In the context of pandemic COVID-19, it is very important to follow the aim of Ayurveda. So, we can divide the whole populations into three major groups: healthy population, infected population, and cured population from infection. These groups of population can also be categorized into

subgroups on the basis of their exposure to viral infection and symptoms shown in their body [Table 1].

PROPHYLAXIS AND PREVENTIVE MEASURES FOR GROUP I (HEALTHY POPULATION) AND PREVENTIVE MEASURES FOR SUBGROUPS 1 AND 2

- They should be in quarantine in their home and try not to expose to other persons of population. Follow the guidelines given by the local authorities and Government.
- They should follow the *Dinacharya* and *Ritucharya*
- mentioned in different texts of Ayurveda.
- Use of diets rich in *Katu*, *Tikta*, *Kashaya Rasa* (taste), fibres, and vitamin A, C, and E.
- Drink adequate amount of lukewarm water whole day.
- Regular practice of *Yogasana*, meditation, and *Pranayama* for at least 30 min and physical activity and exercise for healthy life-style
- Adequate sleep of 7–8 h in night; avoid daytime sleeping
- Exposer of sunlight on whole body for 10–15 min daily.
- Care for retainable and non-retainable urges; do not suppress the coming urges.
- Avoidance of disease causing and aggravating factors (exposure to infection and excessive cold). Avoid air conditioning, cold water, cold drinks, fridge items.
- Physical and social distancing for all groups must be necessary to avoid any viral contamination.

In addition to the above, the guidelines of *Janpadodhdhwansh* described in Ayurveda texts needs to be followed:

- *Sthana Parityaga*: return to home
- *Shanti Karma*: work and maintain peace
- *Prayaschita*: ready to pay penalty
- *Mangala*: Being prosperous
- *Japa*: keep mind Busy with chanting mantra and meditation
- *Homa*: Fumigation, ritual habits which can disinfect air
- *Upahara*: Gift rightly to right people
- *Iejya*: sacrifices (Yagya karma)

- *Anjali* Namaskar:- salute with both hand bind, avoid hand shake
- *Tapo*: Austerity
- *Niyama*: make and follow rules
- *Daya*: kind toward living beings
- *Daana*: give contribution to combat disease
- *Deeksha*: provide knowledge to other persons
- *Abhyugama*: acceptance
- *Devtabrahminguruparairbhavitavyam*: pray together to god and elders

PREVENTIVE MEASURES FOR SUBGROUPS 3 AND 4

In addition to the above-mentioned preventive measures, subgroups 3 and 4 the below-mentioned measures needs to be followed:

1. Wash the hands regularly and thoroughly with an alcohol-based hand wash or disinfectant frequently for at least 20 seconds at a time with warm water and soap.
2. When the hands are dirty, then avoid touching face, eyes, nose, or mouth
3. Objects like phones, computers, utensils, dishware, and doorknobs disinfectants.
4. Maintain at least 2 m (6 feet) distance between yourself and anyone who is coughing or sneezing.
5. Make sure that the people around, follow good respiratory hygiene. It means covering mouth and nose with their bent elbow or tissue when they cough or sneeze. Then dispose the used tissue immediately.
6. The Centres for Disease Control & Prevention (CDC) recommends placing the person in an airborne infection isolation room (AIIR) in addition to using standard precautions, contact precautions, and airborne precautions
 - Respirator or facemask
 - Gown
 - Medical gloves
 - Eye protection

PROPHYLAXIS MEASURES FOR GROUPS 1 MEDICATIONS

Use of Rasayana as Immune Booster

Rasayana is the rejuvenative therapy used to boost the immune system of the body. Those *Rasayana* having the principal effects upon respiratory tract may be useful. *Rasayana* not only improves the immunity but also treats

diseases at times. It may interrupt the course of disease and prevent from becoming a full-blown stage of the disease. It is already proved that fresh juice of *Cynodon dactylon* has immunomodulatory properties and DNA protective activities. Drugs like *Amalaki*, *Haritaki*, *Guduchi*, *Ashwagandha*, *Garlic*, etc. act as *Rasayana* and also cure diseases. *Rasayana* act as an antioxidant, anti-inflammatory, anti-stress, anti-microbial, and vaccine adjuvant, and provides immunity against diseases.

Antioxidants and immunomodulators could help to prevent the occurrence of infectious diseases like swine flu; antioxidant supplement may be used in the management of swine flu and it may be taken as a preventive medicine throughout any infection phase. This theory can be adopted in the management of all types of endemic/ pandemic diseases. There are a number of medicines in Ayurveda providing antioxidant properties.

Uses of Panchakarma therapy

Panchakarma is the natural detoxifying therapy comprising five purificatory measures. It has been scientifically proven that natural purificatory treatments can successfully eliminate toxins and infectious substances without damaging or causing any side effects. *Charaka* described that *Panchakarma* is the best treatment for *Janpadodwansha*. Many *Panchakarma* procedures described in *Dinacharya* and *Ritucharya* as described in classics should be used by Group I populations. These are *Anjana* with *Sauviranjana*, *Rasanjana*, three types of herbal *Dhoompana*, *Nasya* with *Anutail*, *Kaval Dharana*, *Taila Gandoosh*, *Murdhataila*, *Karnapurana*, *Abhayanga* (Massage). In context of COVID-19, Seasonal *Panchakarma* like *Vamana* and *Nasya karma* in *Vasanta Ritu* (season) may provide effective prophylaxis by detoxifying the body.

Nasya (nasal application): Use sesame oil/coconut oil/ cow ghee in both the nostrils (*Pratimarsh Nasya*) in morning and evening.

Gandoosha (oil pulling therapy): Fill the mouth with 1 table spoon sesame or coconut oil. Do not drink, swish in the mouth for 3 to 5 min and spit it out followed by warm water rinse. This can be done once or twice a day.

Uses of medicines:

- Drops (concentrated medicine/*Bindu*): *Swarna- Bindu Prashana*, *Panchtulsi* (*Ocimum*)
- Tablets (*Vati*): *Guduchi Ghan vati*,

Mahasudarshan Ghan Vati, Panchnimbadi Vati

- Herbal powder (*Choorna*): *Amalaki, Haritaki, Guduchi, Ashwagandha Garlic, Sitopaladi choorna, Garlic (Allium sativum), Triphala Choorna, Panchkola, Turmeric (Curcuma longa)* powder, *Eranda Bhrista Haritaki Choorna, Carom or Ajwain (Trachyspermum ammi)* seeds.
- Decoctions (*Kashaya*): *Gojihwadi Kashaya, Kiratiktadi Kashaya, Panchkola Kashaya, Dhanyaka-Shunthi Phant*
- *Avaleha*: *Chyavanprash, Brahma Rasayana, Amrit Bhallataka, Bhallatakavaleha, Vasavleha*
- *Bhashma/Pishti*- *Godanti Bhashma, Pravala pishti*
- *Fumigation (Dhoopana)*: *Guggulu, Loban (Styrax benzoin) and Shallaki (Boswellia species)*
- Drink herbal tea/decoction (*Kashaya*): made from *Tulsi (Basil), Dalchini (Cinnamon), Kalimirch (Black pepper), Shunthi (Dry Ginger) and Munakka*
- *Spices*: *Haridra (turmeric), Jeera (cumin), Dhanyaka (coriander) and Lashuna (garlic)* are recommenced in cooking.
- *Golden milk*: Half tea spoon *Haridra (Turmeric) powder* in 150 ml hot milk, once or twice a day.

Curative and Preventive Measures of Group II (Infected Population)

The Ayurveda treatment not only helps to treat infection caused by a pathogen, but also rejuvenates the immune response, at different levels, to fight against invasions while strengthening the host to resist the virulence of infection. This group of individuals was treated according to their symptoms shown by dominating vitiated *Doshas*. In the context of COVID-19, primarily *Vata* and *Kapha Dosh* aggravated after that, as disease progresses, *Pitta* also involved showing high fever.

Symptomatic Treatment

- Sneezing, mild rhinitis (running nose) and mild cold: *Haridrakhand, Lakshmvilas ras, Kaphketu Ras, Samshamani Vati, Guduchi Ghanavati, Vyoshadi Gutika, and Gojihvadi kashaya*
- Mild fever: *Sanjivini Vati, Sudarshana Ghanavati, Naradiya Lakshmi Vilasa Rasa*

- Sore throat: chewing of *Marichayadi vati, Lavangadi vati, Eladi vati, Yastimadhu vati, and Vyaghri haritaki*
- Mild throat pain: *Shotharilauha, Kanchanara Guggulu, Triphala Guggulu, and Arogyavardhini vati*
- Dry cough: *Sitopaladi/Talisadi Choorna/Gutika, Kantakari Avaleha, Dashamool kashaya, and Yashtimadhu*
- Mild headache: *Godanti Bhasm, Shirashooladi Vajra Ras, and Pathya shadandadi Kashaya*

Panchakarma Treatment

- *Nasya*: *Anutail, Shadabindu Tail, Till Tail, and Karanja Tail*
- *Kavala*: *Nimba Patra Kalk*
- *Gandoosha*: *Till Tail, Tilakalkodaka, and Milk*
- *Dhoomapana*: *Vairechnika Dhooma, and Yava Choorna*
- + *Ghrita*
- *Anjana*: *Sauviranjana*
- *Shiro Abhayanga*: *Brahmi Tail, Mahanarayana Tail*

Subgroup III COVID-19-confirmed cases with moderate symptoms

Subgroup II individuals are positive to COVID-19 with moderate clinical symptoms having moderate grade fever, rhinitis (running nose, cold), excessive dry cough, shortening of breath, difficulty in respiration, Body ache, headache, etc. They should be shifted to isolation ward and may require tertiary care for progression of the COVID-19 disease. In this condition, conventional treatment should be used, and also patients may require ventilator. In this stage, we can also co-prescribed Ayurveda preparations to combat the effect of the pathology by balancing the vitiated *Doshas*.

Symptomatic Treatment

- Acute rhinitis (running nose): *Nardiya Lakshmvilas ras, Kaphketu Ras, Samshamani Vati, Rambana Ras, Panchamrita Ras, Shleshmashlendra Ras, Abhrak Bhasma, Guduchi Ghanavati, Vyoshadi Gutika, Naga vati, Haridrakhand, Chitrak Haritaki, Gojihvadi kashaya, Bharangadi kashaya, and Vanphasadi Kashaya*
- Moderate fever: *Sanjivini Vati, Tribhuvana kirti Rasa, Mrityunjaya Rasa, Hinguleshwar Rasa, Lakshmi narayana Rasa, Jwarakeshari Rasa, Sarvajwarhar*

- *lauha. Sudarshana Ghanavati*
- Moderate headache: *Godanti Bhasm, Shirashooladi Vajra Ras, and Pathya shadandadi Kashaya*
- Severe sore throat: chewing of *Marichayadi vati, Lavangadi vati, Eladi vati, Yastimadhu vati, Khadiradivati, Vyaghri haritaki*
- Severe throat pain: *Shothari lauha, Kanchanara Guggulu, Triphala Guggulu, Arogyavardhini vati, and Vishtinduk vati*
- Moderate coughing: *Chandramrita Ras, Vasantmalti Ras, Sitopaladi Choorna, Talisadi Choorna/Gutika, Shringyadi Choorna, Tankana Bhasma, Dashamool kashaya, Yashtimadhu, Lavangadi vati, Khadiradi Vati, Vyaghri haritaki, Agastya Haritaki, Kantkaryavaleha, Kantkari Ghrita, Pippalyadi Ghrita, etc.*
- Shortness of breath: *Shringa Bhasma, ShringadiKashaya, Mukyadi Choorna, Shatyadi Choorna, Shwasakuthar Ras, Kasturyadhi Gutika, ShwasanandaGutika, and Vasavleha*
- Muscle pain: *MahaVatavidhvansana Ras, Vatari Guggulu, and Vishtinduk Vati*

Panchakarma Treatment

- *Nasya: Anutail, Shadbindu Tail, Pathadi Tail, Rasanjanadi Tail*
- *Kavala: Matulung keshar + Saindhava + Trikatu*
- *Gandoosha: Ghrita, Madhu*
- *Dhoomapana: Prayogika Dhooma and Haridra+ Erandmoola+ Laksha+ Manahshila+ Devdaru + Jatamansi + Yava*
- *Shirodhara: Brahmi Tail, Mahanarayana Tail*
- *Vamana: Recommend Sadya Vamana*
- *Virechana: Recommend*
- *Abhyanga: Sarvanga Abhyana and Swedana*

Subgroup IV COVID-19-confirmed cases with severe symptoms

Subgroup IV are positive to COVID-19 with severe clinical symptoms having high fever, severe cough with with expectoration, difficulty in respiration, severe body ache, severe headache, etc. They should be shifted to ICU ward and require tertiary care for progression of the COVID-19 disease. In this condition, conventional treatment must be used, and patients generally require ventilator. In this stage, we can also co-prescribed Ayurvedic

preparations to subside the effect of the vitiated *Doshas*.

Symptomatic Treatment

- Acute rhinitis: Same as those medications in Sub group-III
- High fever: *Putapakva Vishama Jwarantak lauha, Sarvajwarhar lauha. Sanjivini Vati, Tribhuvana kirti*
- *Rasa, Mrityunjaya Rasa, Jwarakeshari Rasa, Jaya Mangala Rasa, Amar Sundari Vati, Lakshmi NarayanaRasa Sudarshana Ghanavati, Chausatha Prahara Pippali, Pippali rasayana,*^[42] *Laghu Vasant Malati, Panchatikta Kashaya, Guduchayadi Kashaya, Kiratatiktadi Kashaya*
- Chills: *Vrihata vata chintamani Rasa, Vrihata Kasturi Bhairava Ras, Krishna Panchanana Rasa, SheetaBhanji Rasa, Sheetanshu Rasa, Mahajwarankusha Rasa, AYUSH-64, and Jwaramurari vati*
- Severe headache: *Godanti Bhasm, Shirashooladi VajraRas, Chandra kant Rasa, Kamdugha Rasa, Pathya shadandadi Kashaya*
- Severe sore throat: chewing of *Marichayadi vati, Lavangadi vati, Eladi vati, Yastimadhu vati, Vyaghri haritaki*
- Throat pain: along with those medicines mentioned in Subgroup III *Brihata Vata Chintamni rasa*
- Severe coughing with expectoration: *Kasa-Shwasa Chintamani Ras, Kaphachitamani Ras, Chandramrita Ras, Vasantmalti Ras, Talisadi Choorna/ Gutika, Shringyadi Choorna, Tankana Bhasma, Kantakari Avaleha, Vibhitakavleha, Vyaghri haritaki, Agastya Haritaki, Lavandi vati, Khadiradi Vati, Kantkari Ghrita, Pippalyadi Ghrita, etc.*
- Difficulty in breathing: *Shwasa-kasa Chintamani Ras, Mukyadi Choorna, Shwasakuthar Ras, Rasasindoor, Purna Chandrodaya Ras, Kasturyadi Gutika, Shwasananda Gutika, Siddha makardhvaja rasa*
- Severe muscle pain: Same as those medications prescribed in subgroup III
- Anorexia: *Agnitundi Vati, Chitrakadi vati, Hingwadi vati, Lavanabhaskar Chroorna, dadimashatak Choorna, Drakshavaleha, Draksharista, Tintidika Paanak*

Panchakarma Treatment

- *Nasya: Anutail, Karanja Tail*
- *Kavala: Combination of Triphala, Nagaramooha, Madhu, Tail*
- *Gandoosha: Madhu, Sarpi, Kshara Jala*
- *Dhoomapana: Vairechanika then Snaihika Dhooma, Manahshiladi Dhooma*
- *Vamana: not recommend*
- *Virechana: Recommend*
- *Shirodhara: Brahmi Tail, Mahanarayana Tail*
- *Abhyanga: Sarvanga Abhyanga and Patrapinda Pottali Swedana*

Subgroup V COVID-19-confirmed cases with critical illness and complications, patient on ventilator in ICU Subgroup V individuals are positive to COVID-19 with critical clinical symptoms and complications having high fever, severe cough with expectoration, trouble breathing (breathlessness), repeated shaking with chills, loss of smell or taste, inability or confusion to arouse, persistent pain in the chest, bluish lips or face, excessive drowsiness and pneumonia (NCIP), etc. They must be shifted in ICU ward and require tertiary care for the COVID-19 disease. In this condition, conventional treatment must be used and patients generally require ventilator. In this stage, we can also co-prescribe Ayurveda preparations to subside the effect of the vitiated *Doshas*.

Symptomatic Treatment

- High fever: Same medications as described in subgroup 4 can be used
- Severe throat pain: Same medications as described in subgroup 4 can be used
- Severe coughing with expectoration: Same medications as described in subgroup 4 can be used
- Difficult breathing (breathlessness): *Shwasa-kasa Chintamani Ras, Brihada Shwasa Chintamani Ras, Nagavallabh Ras, Brihada Kasturi Bharava Ras, Suryavarta Ras, Shringa Bhasma, Mukta Bhasma, Mukta Choorna, Shwasakuthar Ras, Rasesindoor, Purna Chandrodaya Ras, Kasturyadi Gutika, Shwasananda Gutika, Siddha Makardhvaja rasa, Soma choorna, Vijaya vati, Vyaghri haritaki, Agastya Haritaki, Bharngi Guda, Kanakasava, Vasarista, Vasa Ghrita, Manahshiladi Ghrita, Shringadi Ghrita, Shataputi Abhraka bhasma, Rasamanikya, Gold Bhasma, Shwasananda Gutika, Sameera Pannaga Rasa*

- Pneumonia and persistent pain or pressure in the chest: *Shwasa Kasa Chintamani Rasa, Vrihata vata chintamani Rasa, Chaturbhujia Rasa, Trailokya Chintamani Rasa, Hemagarbha Pottali Rasa. Shataputi Abhraka bhasma, Karpooradi Choorna, Chausatha Prahara Pippali, Suvarna Malini Vasanta Rasa*
- Repeated shaking with chills: *Vrihata vata chintamani Rasa, Vrihata Kasturi Bharava Ras, Vatakulantak Rasa, Murchchhantak Rasa, Swarnamakshika Bhasma, Siddha makardhvaja rasa, Krishna Chaturmukha Rasa, Panchanana Rasa, Sheeta Bhanji Rasa, Sheetanshu Rasa, Mahajwarankusha Rasa, AYUSH-64, Jwaramurari vati*
- Confusion or inability to arouse: *Yogendra Rasa, Chandeshwar Rasa, Brahmi Vati, Smriti Sagar Rasa, Vatakulantak Rasa, Saraswatarista, Jatamansi Choorna/Kashaya*
- Anorexia: *Yavanishadava Choorna, Hingwastak Chroona, Lavangadi Choorna, Karpooradi Choorna, Karavyadi Gutika, Sutashekhar Rasa, Aadarakavaleha, Panchasava, Saptarisita, Jirakadi Ghrita*
- Bluish lips or face: use ventilator

CONCLUSION

Ayurveda has mentioned *Janpadodhdhwansa*, a number of invisible and very minute objects like *Krimi, Bhoota*, etc. that cause serious diseases, different types of *Agantuja Vikara* (including unknown causes), and different kinds of *Aupasargika Vyadhi*. The conclusion drawn from above-mentioned interpretations, it is clear that COVID-19 is *Aupasargika*, and *Janpadodhdhwansa Vyadhi* caused by a type of *Krimi* or *Bhoota* (SARS-CoV-2) which comes from outside of the body. The clinical symptoms of COVID-19 resemblances with *Abhishangaja Jwara, Vata-Kaphaja Jwara* and *Sannipataja Jwara* and management are proposed symptomatically.

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