

## AYURVEDA PERSPECTIVE ON PREVENTION AND CONTROL OF COVID 19 PANDEMIC- A NARRATIVE REVIEW

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### ABSTRACT

The world is facing unprecedented loss by the Covid-19 pandemic caused by Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV-2). The world is appalled by the uncontrolled spread of the disease with currently total 22,888,076 corona virus cases and 797,599 deaths globally and 2,910,032 cases and 55,002 deaths in India as of August 21, 2020. Despite of efforts being taken by health sectors all over the world there is no potential cure or vaccine yet the treatment is therefore largely supportive and empirical. Most of the infected people have a mild-to-moderate clinical course, and the elderly, the immunocompromised and those with other comorbid conditions land into severe acute respiratory syndrome that has high mortality. The Indian traditional medical science Ayurveda has tremendous things to offer in control and prevention of corona virus. It has immense potential in strengthening of immunity and maintaining health through close attention on balancing one's body and mind, right thinking, diet, lifestyle and the use of ayurveda herbs and therapies among which Rasayana therapy plays a vital role. The AYUSH Ministry in collaboration with the Health Ministry is launching clinical research studies on Ayurveda interventions as prophylaxis and as an add-on to standard care to COVID 19.

**KEYWORDS:** Covid-19, Pandemic, Ayurveda, Immunity, lifestyle, Rasayana therapy, AYUSH Ministry.

### INTRODUCTION

Corona virus infection is caused by corona virus of coronaviridae family. It is single stranded virus with a crown like appearance.<sup>[1]</sup> The corona virus was first discovered in 1965 and became familiar after the pneumonia outbreak in 2002 in china. The first patient of corona virus disease of 2019 (COVID-19) was found in the Wuhan city, china. It was declared as global health emergency on 30 January 2020 by World Health Organization (WHO).<sup>[2]</sup> The clinical features of the disease include fever, shortness of breath, sore throat, fatigue, bodyache, runny nose.<sup>[3]</sup> From Ayurvedic point of view it can be considered as *vātakapha* dominant *sannipātaj jwara* of *āgantū* origin with *pittānubandha*.<sup>[4]</sup> The *Charaka Samhita* explains the management of epidemics and *aupsargic roga* (communicable diseases) in *Janapadodhwansa adhyaya*. The concept of *janapadodhwansa* mentioned in Ayurveda refers to the situation where there is wide spread damage to environment as well as life forms. Epidemics and outbreaks of highly communicable diseases have infected mankind since time immemorial. *Janapadodhwansa* literally means destruction or annihilation of communities or settlements by vitiation of

*vayu* (air), *jal* (water), *desh* (earth) and *kala* (season).<sup>[5]</sup> The Government of India has taken a step towards this pandemic as 'Interdisciplinary AYUSH Research and Development Task Force' with the objectives of reducing the suffering and deaths associated with COVID-19 in India.<sup>[6][7]</sup> The combined initiative is being taken by the Ministries of AYUSH (Ayurveda, Yoga, Unani Siddha, Homeopathy in India), Health, Science & Technology through the Council of Scientific and Industrial Research (CSIR) with technical support from the Indian Council of Medical Research (ICMR) of working together to test four Ayurvedic formulations (Rasayanas) — Ashwagandha, Yashtimadhu, Guduchi, Peepli and Ayush 64.<sup>[8]</sup> In the advisory, the Ministry of AYUSH, Government of India has prescribed Immuno modulatory Ayurvedic drugs as a preventive measure against COVID-19 disease along with other measures like using hot water and tea made out of pepper, ginger, tulsi (Basil leaves), nasal application, oil pulling.<sup>[9]</sup> The natural products from Ayurveda have the potential to modulate host immune system as well as block the virus entry in host cells by interfering its interaction with cellular receptor and may be used to develop an effective and broad-spectrum strategy for the management of

COVID-19 as well as other coronavirus infections in coming future. The ayurvedic lifestyle can combat the covid - 19 pandemic. By adopting Ayurvedic measures such as following proper Dincharaya, Rutucharya, Sadvritta, Achara Rasayana, Panchakarma, Shaman Cikitsa & Rasayana, Yogapachara, Spiritual therapies, Dhoopana Karma; both physical and mental health can be maintained & occurrence & spreading of such diseases can avoided. Ayurveda can give This is an encouraging development and a good initiative for the treatment.<sup>[10][11]</sup> Hence, it is feasible to make good use of these traditional practices could be beneficial both in terms of psychological quality of life, and in terms of moderating the risk of infection.

### RASAYANA THERAPY

Rasayana therapy includes immunomodulatory ayurvedic herbs or formulations to boost immunity which is compromised in case of COVID-19.<sup>[12]</sup> Rejuvenation and revitalization mechanism of the Rasayana drugs not only enhance the immune system but increase the longevity of life as well. Rasayana acts on the three levels of the bio-system i.e. at the level of Agni by promoting digestion and metabolism, at the level of Srotas by promoting microcirculation & tissue perfusion, at the level of Rasa itself by acting as direct nutrient hence, these Rasayana Dravyas has been used as the first line of defence for *Janapadodhwansa* (Epidemic Condition). Rasayana may be used in two ways, first as a prophylactic medicine and second as a preventive measure in healthy people. Drugs like *guduchi*, *haridra* and *amalaki* are good immunity boosters.<sup>[13][14]</sup> Clinical research proved that *Ashwagandha* (*Withania somnifera*) as rasayana drug has great effectiveness in immunity boosting.<sup>[18][19]</sup> Withanone from *Withania somnifera* May Inhibit Novel Coronavirus (COVID-19) Entry by Disrupting Interactions between Viral S-Protein Receptor Binding Domain and Host ACE2 Receptor.<sup>[20]</sup> *Chyavanprash* is one of the well known Rasayana of ayurveda and it is highly recommended in this covid-19 pandemic. Contents of *Chyavanprash* shows a wide range of actions on respiratory diseases as well as on boosting immunity.<sup>[15]</sup> Ayurveda mentioned the unique concept of *achara rasayana*.

Acharya charaka explains in his treatise, the rejuvenation effect of good quality conduct which is to be followed on guidelines given in ayurvedic scriptures. The measures include be truthful, devoid of uneven anger, not indulge in violence, alcohol and unethical sex. One must be serene and stable in the mind and polite in his speech, maintain cleanliness, regularly practice charity and pay respect and worship the teachers, parents, elders, poor, etc. One must show compassion and empathy towards others and have correct sleep-wake cycle. The intake of ghee as well as milk is the only internal administration recommended as *achara* in this context. One must possess expert knowledge in rationality, free from ego, good conduct and be broad minded. One must have spiritual approach towards life as well as scientific

awareness of modern world.<sup>[16]</sup> *Achara rasayana* also brings proper control over sense organs which in turn prevent the psychosomatic disorders.<sup>[17]</sup> By following these codes of moral conduct one can enhance his social status and prevent majority of disorders affecting the body as well as the mind and hence lead a happy as well as healthy life.<sup>[16]</sup>

### AYURVEDA DRUGS AND FORMULATIONS

The ministry of Ayush recommended 'AYUSH KWATH' formulation to help boost the immune system and as the body's first line of defense against bacteria and viruses. AYUSH KWATH is a combination of four medicinal herbs commonly used in every Indian kitchen - basil leaves (*tulsi*), cinnamon bark (*dalchini*), *Zingiber officinale* (*sunthi*), and *krishna marich* (*Piper nigrum*).<sup>[21]</sup> Clinical trials on Ayush-64 along with few other drugs are also proposed to combat covid-19 as it can be seen effective in influenza like illness.<sup>[22][23]</sup> Herbs such *Tulsi* (*Ocimum sanctum*), *Ashwagandha* (*Withania somnifera*), *Amla* (*Emblica officinalis*), *Ashwattha* (*Ficus religiosa*), *Brahmi* (*Bacopa monnieri*), *Dhanyak* (*Coriandrum sativum*), *Rason* (*Allium sativum*), *Guduchi* (*Tinospora cordifolia*), *Haridra* (*Curcuma longa*), *Yashtimadhu* (*Glycyrrhiza glabra*), *Kantakari* (*Solanum xanthocarpum*), *Marich* (*Piper nigrum*), *Nimba* (*Azadirachta indica*), *Pippali* (*Piper longum*), *Sunthi* (*Zingiber officinale*), *Tulsi* (*Ocimum sanctum*), *Twak* (*Cinnamomum zeylanica*), *Vasa* (*Adhatoda vasika*) are recommended by Ayurveda for ailments like COVID -19 which are originated from Vata & Kapha. All these drugs are antioxidants, anti-inflammatory, immunomodulatory, antiviral, antimicrobial & *Vatakaphahar* in nature. *Taleesadi choorna*, *Sitopaladi choorna* – Both are very useful against cough, cold and breathing problems. *Karpooradi choorna* – improves digestion and respiratory health. *Shatyadi choorna* – improves breathing. *Shwasa kasa chintamani rasa* a herbo-mineral preparation proves effective in asthma, breathing difficulties, shortness of breath. *Kanakasava* acts as a good broncho-dilator and improves breathing. *Vasakasava*, *Pushkaramoolasava* are useful in reducing cough, improves breathing, relieves chest pain, discomfort.

### NASAL APPLICATION

*Nasya karma* is ayurvedic technique in which the medicine is administered through nose either in the form of ghee, oil, powder, liquid or smoke. It is particularly useful in the treatment of disorders of head but indirectly it has effect on the whole body by improving the functioning of the endocrine glands and nervous system. Acharya Vagbhatt said "*Nasa hi shiraso dwaram*" i.e. Nose is said to be the main doorway to brain. The nasal application reaches to CNS through nasal route and acts on higher centers of brain controlling different neurological, endocrinal and circulatory functions and thus have local as well as systemic effect.

### OIL PULLING

Oil pulling or mouth gargles are an ayurvedic remedy practiced in the ancient india. It is believed to cure more than thirty systemic diseases when practiced regularly as per indications given in ayurvedic texts. Oil pulling is observed to bring improvement in oral hygiene as well prevent entry of viruses and bacterias through mouth.<sup>[25]</sup> Oil pulling is done by two procedures in ayurveda. In *Gandusha* the liquid is filled in maximum capacity inside the mouth and held for specific time without gargling then it is spit out. In *Kavala* enough amount of liquid is filled in the mouth so that one can gargle and rinse the mouth for specific time and later it is spit out. It prevents diseases of oral cavity and throat, extra salivation, nausea, anorexia, rhinitis, etc.<sup>[26]</sup>

### DHOOPAN VIDHI (FUMIGATION THERAPY)

Dhoopan or dhoompana vidhi is a procedure in which fumes or smoke produced from defined drug formulations are inhaled/exposed by patients for the therapeutic relief or externally as a cleanser to the environment. Ayurveda recommends fumigation as a method of sterilization with economic, readily available, safe and ecofriendly aromatic substances which not only provide physical, and mental health but also purify and sanitize environment to kill microbes. It is a therapeutic procedure for various human diseases, including microbial infections, vector-borne, airborne viruses and psychological dhoomapana<sup>[27]</sup> Ashtanga Hrudaya mentioned Aparajita dhooma in *Jwara Chikitsa* for treatment for fevers especially by Agantu factors that are external causes like germs, viruses, psychiatric factors, poisoning, injury etc. For prevention of entry of covid-19 through nasal or oral routes one can use turmeric and neem powder 1 teaspoon and mix it with a teaspoon of ghee. Burn it on hot pan and expose yourself to the fumes coming out of it. In the traditional method the above are purified appropriately and then powdered and made into a wick with ghee or oil and then dhoomapana is done. We can perform herbal smoking easily by using few ingredients available at home like turmeric and along with cinnamon, cardamom and clove.

### ABHYANGA (OIL MASSAGE)

Application of medicated oil over the body surface in a systematic manner with specialized techniques for a specific time is called Abhyanga.<sup>[29]</sup> Abhyanga combines massage techniques that offer the body the deepest relaxation, the oils detoxify and decongest the body more specifically the skin and the muscles. This treatment helps to reduce anxiety and strengthen the immune system.<sup>[28]</sup> Abhyanga / OIL massage should be done daily as it delays ageing, relieves exertion and excess of vata (aches and pains), it improves vision, nourishes body tissues,prolongs age, induces good sleep and improves skin tone and complexion.<sup>[29]</sup>

### YOGA AND PRANAYAM

Yoga practice enhances the strength of expiratory as well as inspiratory muscles in healthy individuals thereby

improving pulmonary functions and preventing respiratory diseases in future. Yoga practice helps in building strong immune system and relieve stress.<sup>[30]</sup> Suryanamaskar (12 poses) is advised on a daily basis as it cleanses your body, improves lung and airway functions and helps drain secretions. Pranayama helps in bringing the harmony between sympathetic and parasympathetic nervous system. Pranayama reduces muscle tone and corrects breathing patterns thereby causing broncho-dilation. Pranayamas like *Nadi-shudhi*, *Kapalbhati*, *Bhastrika*, *Bhramari* helps in strengthening the respiratory system.<sup>[33][34]</sup>

*Nadishodhan* pranayama has immediate effects on respiratory, cardiovascular and nervous system.<sup>[35]</sup> *Asanas* like *Bhujangasana* (cobra pose), *Ushtrasana* (camel pose), *Hastapadasana* (hand to foot pose) increase movement of ribcage and spine thereby improving the functions of lungs. Yogic practices enhance muscular strength and body flexibility, promote and improve respiratory and cardiovascular function, reduce stress, anxiety, depression or other mental illness and enhance overall well-being and quality of life.<sup>[31]</sup> Yoga practice combining physical posture, mindfulness, and meditation can be a holistic preventive and rehabilitative measure for elderly in case of covid-19 pandemic.<sup>[32]</sup>

### MEDITATION

According to the survey conducted during the Covid-19 pandemic the overall mental health is affected globally. Due to several crisis and lethargic lifestyle the major population of the world is landing in depression and anxiety.<sup>[36]</sup> The mental health program has to be implemented all over the country. Meditation plays a vital role in balancing of the mind, de-stressing and preventing of the depression. The process of meditation includes simple breathe in and out as a pranayama or concentrating on a single thing. During the process of meditation, accumulated stresses are removed, energy is increased, and health is positively affected overall. The meditation process takes the mind from the outer realm of the superficial and materialistic world to the inner realm of the deeper self.<sup>[37]</sup> The 15 minute of meditation has the effect of single day vacation on a person which can certainly help to reduce depression in covid-19 pandemic.<sup>[38]</sup>

### DINCHARYA

Dinacharya is known as the ideal life style which explains regular regimen one should follow in a day to day life to maintain health. Dincharaya plays a vital role in prevention of various disorders which are resultant of improper lifestyle and bad conduct. In this way by following proper regimen as said by Acharayas we can prevent them and leads a healthy and diseases free life.<sup>[39][40]</sup> These are the duties systematically and scientifically explained to establish balance in one's body constitution. It also regularizes a person's biological clock, aids digestion, absorption and

assimilation and generates self esteem, discipline, peace, happiness and longevity. It starts from waking up in the morning at Bhramhi muhurtha (early morning before sunrise), Ushapana (drinking water stored in copper or silver pot), Mala-Mutra Visarjana (Defecation), Dantadavana (brushing), Kavala Gandusha (gargling) etc. Starting from the benefits of trimming the nails, taking bath, using a footwear, using umbrella to protect from strong sunrays, every do's and don'ts are described in detail in the context of Dinacharya (Daily regimen)<sup>[39]</sup> Dinacharya also includes precautionary health regimen which have activities that can prevent the entry of virus into the body. It includes Vamana – kapha kala – in spring season, Anjana – eye collyrium, Nasya – nasal application, Dhooma – herbal smoking, kavala gandusha – oil pulling, Karna poorana – for the ear, Abhyanga – oil massage, Dhoopana vidhi – Fumigation for the environment.<sup>[39][40]</sup>

### RITUCHARYA

Ritu means the season. According to Indian calendar there are six seasons called *Shishir, Vasanta, Grishma, Varsha, Sharad* and *Hemant*. These seasons are characterized by different features which has great impact on the body as well as the environment. Ayurveda has depicted various rules and regimens (Charya), regarding diet and behavior according to each season to acclimatize seasonal variations at the same time maintaining the homeostasis of the body. The basic principle of Ayurvedic system of medicine is prevention of disorders which can be achieved by the change in diet and regimen in response to change in climate. As human being is also part of the same ecology, the body is greatly influenced by external environment. Many of the exogenous and endogenous rhythm have specific phase relationship with each other; which means that they interact and synchronize each other. If body is unable to adopt itself to stressors due to changes in specific traits of seasons, it may lead to one or other kinds of disorders. The stress of coping with energetically demanding conditions can also indirectly cause illness and death by compromising immune function. People are unaware or ignorant of the seasonal regimen which includes consumption of suitable food, practice of suitable activities, wearing appropriate garments and other stuffs according to the changing season. This may lead to imbalance of lifestyle and derangement of homeostasis which results in various lifestyle disorders like obesity, diabetes, hypertension, cancer, etc.<sup>[40][41]</sup>

### NIDRA (SLEEP)

Ayurveda scriptures mentioned the importance of *nidra* in maintenance of health. Ayurveda regards *nidra* (sleep) as one of the most essential factors responsible for a healthy and fulfilling life. It is one of the *trayopastambhas* (three great subsidiary pillars) on which a person's health is firmly balanced. Sound sleep at night is a natural and nourishing phenomenon, so it is also called *bhutadhatri* (nourishes all living beings) which leads to happiness and longevity of human life while

sleep deprivation or excessive sleep leads to unhappiness and disease conditions.<sup>[43]</sup> Sleep and the circadian system helps in regulating the immunological systems in the body. Regular sleep-wake cycle controls immune parameters like leukocyte numbers, function, proliferation and cytokine production. The good amount of sleep increases immunological memory.<sup>[42]</sup> One of the most important ways to ensure a good night's sleep is simply to maintain a regular bed and wake time schedule. To soothe into sound sleep before bedtime one can drink a cup of warm milk with teaspoon of honey in it, can practice *yognidra*, foot or scalp massage or aromatherapy.

### SADVRITTA

'Sad' means good and 'Vritta' means conduct. Ayurvedic texts has explained the importance of good conduct in prevention of diseases and improvement of immunity. Acharya Vagbhata defines *sadvritta* as, compassion for all creatures, sacrificing, control of mind in physical, verbal and mental actions with aid of his wisdom and having empathy that is considering others emotions as of our own and acting accordingly. Thus following the rules of good conduct (*sadvritta*) help to attain long life, wealth, health, reputation and eternal life. According to *Charak Samhita*, following of *Sadvritta* has two objectives- maintenance of positive health and control over sense organs. Following these ethical, social, moral, mental, etc. conducts will help to prevent the transmission of communicable infections like Covid-19.<sup>[44]</sup>

### ADHARNIYA-DHARNIYA VEGA

*Adharniya veg* are the urges which shouldn't be suppressed. It includes the urge of flatus, urine, faeces, sneezing, thirst, hunger, sleep, cough, breathing, yawning, tears, vomiting and semen.

*Dharniya veg* are the urges which one should suppress. It includes greed, grief, fear, anger, egoism, shamelessness, jealousy, excessive affliction and desire to acquire someone else's wealth. Clinical evaluation shows that suppression of natural urges (*adharniya veg*) i.e *vegvidharana* leads to psychosomatic and stress disorders. Suppression of natural urges *vegvidharana* including voluntary retention of urine has been considered to be harmful in Ayurveda and is likely to induce vitiation in *doshas* causing several kinds of diseases.

*Vegavidharana* creates stressful situations which is known in the pathogenesis of stress diseases. Hence this suppression of urges should be avoided.<sup>[45]</sup>

### HOT WATER CONSUMPTION AND DIET

Hot water and its benefits has come into attention more during Covid 19. Ayurveda has already described the medicinal properties of hot water as it promotes digestion, relieves throat pain, clears phlegm and generally it is recommended for drink in condition of throat infection.<sup>[40]</sup> Ayush ministry has advised

consumption of hot water as a preventive measure against COVID-19 disease.<sup>[9]</sup> The curative effect of food is an established belief for many generations in India. Indian culture has strongly suggested the role of diet in both preventive and therapeutic medicines. These Indian traditional foods are based on the different indigenous systems of medicine which was the natural way of achieving physical and mental wellness, but their origin still remains unknown. Though, the whole world realized that food plays a major role in disease prevention only in the 20th century, ancient India seems to have realized the importance of food in health and wellness much ahead of time. In India, several spices used for daily consumption are said to possess antiviral properties. Hence, there is a realistic possibility to reach a therapeutic dose by daily dietary consumption. There are many drugs mentioned in Ayurveda which are used in the kitchen as food for daily consumption like Turmeric, ginger, clove, cardamom, asafoetida, and garlic which have antimicrobial activities.<sup>[40]</sup> Tulsi as a potent antiviral may be effective in prevention of covid-19.<sup>[46]</sup> Curcumin, the predominant curcuminoid in turmeric, influences multiple signaling pathways and been found to possess anti-inflammatory, anti-oxidant, antimicrobial, hypoglycemic, wound healing, chemopreventive, chemosensitising and radiosensitising properties.<sup>[47]</sup> Onion and garlic are natural sources which are known to possess antiviral properties. It is well known that onion and garlic are rich source of organosulfur compounds. Organosulfur compounds like quercetin and allicin are associated with inhibition of viral infection.<sup>[48]</sup> One should eat warm, fresh and food at regular timing for maintaining health. Cold food, cold beverages, iced tea or water, ice cream should be avoided.

## CONCLUSION

The whole world is taking efforts in finding the cure and the vaccine against novel coronavirus. Meanwhile, observing the current scenario isolation and preventive measures seem to be the best option available right now. To endure all the crisis and maintain high human spirit in this pandemic one has to consider mental, physical and emotional well-being. It is wise to take advantage of all the human sciences which are made for the betterment of our life. Hence, one can inculcate the ayurvedic lifestyle by all the above mentioned means for prophylactic purpose against the virus as well as for maintaining the health and peace in mankind.

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