



Combating COVID-19 with holistic approach of Ayurveda

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Ayurveda, the ancient Indian medical system is a rational and practical way for the systemic study of life through its unique holistic approach. It differs from other medical system in the manner it defines health, disease and the systematic enterprises to achieve the healthy life. COVID-19 is an emerging pandemic that ensnared the human race and endangered millions of lives. Currently, COVID-19 become the biggest health problem for the society because of its sudden appearance, unknown pathogenesis, difference in the pattern of the disease in different countries, difference in mortality rate, testing variability, absence of unanimous health strategy, difference in sign and symptoms, etc. Complexities appears in successful management of the disease because it open two front war: (1) to prevent it from spreading; as it is highly contagious and one contaminated individual has capacity to infect many more at a time by direct or indirect mode of transmission and probably about 10% of cases lead to 80% of the spread; and (2) to manage the disease and its complications. Prevention is the greatest challenge in the present pandemic and therefore it is requires to have a practical set of rules that can be followed by mass population irrespective of racial, geographical and cultural variation. The article gives a comprehensive review of daily regimen, seasonal regimen, simple spices from the kitchen that works as medicine and moral conduct regimen for the prevention of COVID-19.

Keywords: *Daivavyapasraya Chikitsa* (Devine therapy), *Ritucharya* (dietary and life style regimen during different season), *Satvavayajaya Chikitsa* (Psychotherapy), *Yuktivyapasraya* (Rational therapy)

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Corona virus disease (COVID-19) which is almost unknown to world before December 2019 declared a Public Health Emergency of International Concern (PHEIC) within three months of its emergence¹. More than 5.1 million infected cases and 3.33 lakh death involving 186 countries and locking more than 2 billion population in their home is enough data to declare corona virus a century worst crisis. Despite of lots of research tracing the tract of mode of infection, its transmission, clinical consequences, complications and also fatality a very clear pathogenesis is still not worked out. As per the available information by the WHO, the virus is transmitted through direct contact with respiratory droplets of an infected person (generated through coughing and sneezing), can also be transmitted by touching surfaces contaminated with the virus and touching human face (e.g., eyes, nose, mouth) i.e., human-to-human mode of transmission³. Its incubation period may range from 1 to 12.5 days (with median estimates of 5 to 6 days), but may be as long as 14 days⁴. The serial interval for

COVID-19 virus is estimated to be 4 days⁵. The symptoms may range for asymptomatic or mild symptomatic (80%) to severe infection (15%) to critical infection requiring oxygen and ventilation (5%)⁶. There may be some variation regarding fatality in different countries where critical infection fraction may be much more than 5%^(ref7). For most patients, COVID-19 might affect only the lungs because it is mainly a respiratory disease. Some reports suggest that it is actually a “cytokines storm” that causes immunological cascade and ultimately multiorgan failure^{8,9}. There is very likelihood of involvement of highly pro-inflammatory condition in the disease progression and severity. Individuals with age more than 60 years, having comorbidity are more susceptible for developing critical complications like respiratory failure or acute respiratory distress syndrome (ARDS), etc¹⁰.

As there does not exists a definitive treatment for the viral infection in conventional medicine till now, the symptomatic management and empirical line of management is considered as the standard line of care. Preventive medicine being the core objective of

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Ayurveda by maintaining health of a healthy individual by following *Dinacharya* (daily regimen), *Ritucharya* (seasonal regimen) and consuming *Rasayana* (immunomodulators), one can prevent from being affected by disease in future. In this situation of outbreak of COVID-19, for checking the progression of the disease in a quarantined population by employing the preventive and therapeutic Ayurveda principles is highly required.

Janpadodhwansa (Epidemic): Epidemic in Ayurveda is considered under the umbrella of *Janpadodhwansa* literally meaning mass destruction of community at a particular time. According to Acharya Charak (the great Indian physician), changes in the celestial movement or direction causes vitiation of season which in turn vitiates the land (soil), air, water (4 factors) and produces epidemics (Fig. 1).

Spinning of earth on its axis not only determined the season but also determined the electromagnetic field on the earth. Change in the intensity of magnetic field influences the movement of ionic charge (ionosphere). These changes influence the living system also. They change the blood flow, especially in capillaries, affect blood pressure and boost adrenaline. Thus, astronomical changes are linked with seasonal disturbance which in turn causes disturbance in the ecosystem (thermodynamic entropy) and changes the flora; spoiling the soil, water and air. Even slight change in the milieu externs disturbs the homeostasis of milieu interns. These changes results in excessive production of free radicals and reactive oxygen species (ROS) which in turn impair the cellular signalling and ultimately

causes cellular damage. The description relates the energy imbalance of environment with the outbreaks of disease at a particular time. Thus, as per Ayurveda the reason for such outbreaks is impaired immunity.

Current Prospective: COVID-19 related pandemic can be considered as *Janpadodhwansa* based on the fact that it causes death of large population (involving almost every country of the World) at a time. Though the causative agent is a virus (a betacoronavirus) but apparently three out of four factors (*Desha*- involving different geographical conditions, *Kala*- various unnatural celestial incidence and *Vayu*- airborne transmission) alleged responsible for *Janpadodhwansa* are also involved in COVID-19 pandemic. There are three types of treatment modalities in Ayurveda viz., *Daivavyapasraya* (Divine therapy), *Yuktivyapasraya* (Rational therapy) and *Satvavayajaya* (Psychotherapy) (Fig. 2).

Applicability of these three treatment modality depends upon the etiological factors and severity of



Fig. 1 — Causes of the *Janpadodhwansa*

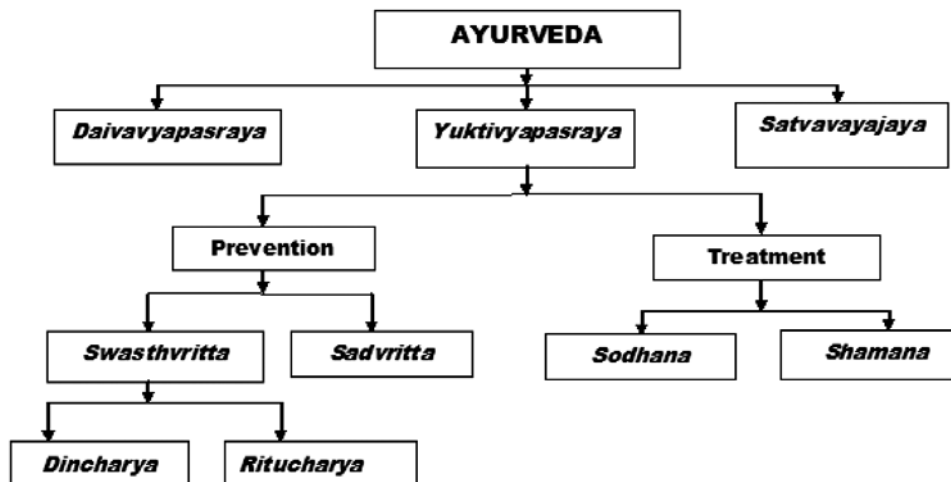


Fig. 2 — Treatment Modalities in Ayurveda

disease. Holistic management of a disease involves a cumulative use of all these treatment modalities under the subheadings of – *Sodhana* (detoxification treatment modality) and *Samana* (pacifying treatment modality). Below is the diagrammatic presentation of holistic treatment modality of Ayurveda (Fig. 3).

Based on the holistic principle of Ayurveda, strategically management of *Janpadodhwansa* can be planned as follows-

- **Three step module** – For prevention as well as treatment
- **Two step module** – For treatment
- **One step module**- For prevention only

A. **Three step module:** This involve sequential management based on the objective of treatment-

1. Preventing entry of virus – By following *Dinacharya* (daily regimen) and *Ritucharya* (seasonal regimen) as per the guideline provided by the Ministry of AYUSH.

2. Inhibiting replication of virus within host cell – By using herbal and herbo-mineral medicines.

3. Protecting tissue damage and cell necrosis – By using *Rasayana* therapy.

B. **Two step module:** This involves medicinal (anti-viral and immune enhancer herbs and herbo-mineral preparations) and Panchakarma therapy for the management of SARS-CoV-2-

1. *Sodhanachikitsa* (Detoxification therapy)
2. *Samanachikitsa* (Pacifying treatment)

C. **One step module:** This involves dietary and life style regulation (*Aahara- Vihara*) in daily routine for maintenance of good health.



Fig. 3 — Holistic Approach of Ayurveda

I. YUKTIVYAPASRAYA CHIKITSA (Rational treatment methodology)

Prevention (Preventing entry of virus)

Following are the simple measure that can be performed regularly to avoid the entrance of virus into the body through the natural orifice like mouth and nose-

- **Pratimarshanasya (nasal instillation):**

Applying Anutaila in the nostrils not only moisten the nasal mucosa and trap the particulate substances but also helps in killing the invading microbes. It acts as an additional natural protective layer just like mask that restricts the entry of microbes in respiratory tract without disturbing the normal physiological functions. Lipophilic nature of Anutaila is helpful in inhibiting hydrophilic virus efficiently. Moreover the fact that nasal lining are rich in cells having ACE2 receptors and the corona virus having spike protein targeting ACE2 receptors of human alveoli, make the logic that the virus can be capture more efficiently at the entrance.

- **Gandusha (oil pulling):** Filling the mouth with plain sesame oil, cow's ghee or triphalakwath for 5-10 minutes helps to maintain oral hygiene by strengthening the gums, stimulating the salivary glands for secreting more saliva, inhibits the growth of microorganism (*Prakritivighat*). *Triphala Gandusha* even for once in a day is sufficient to maintain oral hygiene as Triphala is one among best disinfectant medicines in Ayurveda. It is having both bacteriostatic as well as bacteriocidal activity. About 13.9% patients infected with corona virus have sore throat as a symptom (corona virus can enter in the body through mouth also) and therefore gargling with luke warm water added with pinch turmeric powder or *Gandusha* may prove beneficial in checking the entrance of virus into body.

- **Yajna/Hawan (fumigation therapy):** Sterilizing whole environment with the help of fumigation of medicinal plants like Neema leaves, Guggulu, Sarshapa seeds, Shirisha bark, Karanja leaves etc., is very valuable aid in preventing community transmission at large scale and at small scale (*Dhupana Karma*) disinfectant the local working area like hospital, office, home, etc.

- **Washing hands with Triphala & Neem water:** Frequent use of alcohol based sanitizer

damages the skin and weakens the first line immunity by depleting defensin whereas use of Neem and Triphala decoction (dilution level 1:16) for frequent hand wash does not damage the skin and is equally efficient. Habit of frequent hand washing prevents the chance of infection up to 50%.

Maintenance of Good Health (Immune-enhancer)

A. Dincharya (Daily regimen)-Following daily routine habits are useful in preventing SARS-CoV-2 related diseases:

- **Early waking and Surya Namaskara (Sun salutation) exercise:** Waking early in the morning and doing daily *Suryanamaskar* is the easiest and most affordable preventive measure to combat diseases and boosting immunity. Doing exercise in sun exposure at early morning enrich body with Vit D which is one of the best immunomodulator. As per the recent study those who have deficiency of Vit D are twice more susceptible for death due to SARS-CoV-2 than those having normal Vit D level. *Surya Namaskar* is a Yogic exercise in which different posture of body helps to expose each and every part of body to sun light for a definite time. This not only helps in toning the body muscles also helps in enhancing the circulation in small joints thereby reduces the oxidative stress.

- **Drinking luke warm water:** Luke warm water helps to useful in increasing skin conductance and temperature (+1.7 °C) with peak effects observed only 10-30 min post-consumption. This helps in maintain the core temperature of body and resist the temperature variation caused by the infection that further helps to maintain the higher functions normal.

- **Taking Healthy Diet:** Light warm food enriched with spices including cinnamon, clove, garlic, coriander, cumin, asafetida, etc. helps in enhancing body immunity. Daily use of *Rasayana* like Chyawanprasha (1 TSF= 10 gms) is very useful protective measure for corona virus pandemic. Intake of golden milk (milk added with ½ TSF of turmeric powder) is also a good measure in preventing the corona virus infection due to anti-inflammatory, anti-allergic and anti-microbial properties of curcumin.

- **Taking proper sleep:** Good sleep is the best immune modulator. Thoughts have capacity to stimulate immune system and give hyper immune

response as seen in flight or fight syndrome or anaphylactic response. Proper sleep is required to replenish body immune cells, revive their functioning and storing the memory of response.

B. Ritucharya (dietary and life style regimen during different season)

First symptomatic case of corona virus was reported in March in India and that was the time of end of *Shishira Ritu* – winter season (mid January-mid March) and it is assumed that its peak will reach in June-July (*Grishma Ritu*). Therefore, *Grishma Ritucharya* (i.e., seasonal conduct for summer season) should be followed to prevent disease. As per Ayurveda, during summer season there is depletion of *Kaphadhatu* and increment of *Vatadosha*. The predominant *Rasa* is *Katu* (pungent) and *Mahabhuta* are *Agni* and *Vayu*. The strength of the person becomes less (immunity weakens) but the *Agni* of the person will remain in mild state. Following measures are helpful in maintaining the balance of three *doshas* within body and thereby maintain the homeostasis-

- Use of *Madhura* (sweet), *Snigdha* (unctuous), *Sheeta* (cold), and *Drava* (liquid) *Guna* food items like *Draksha* (sugarcane), *Madhuka* (*Madhuca longifolia*/ Butter tree), *Khajoor* (date) juice, coconut water, butter milk, curd with pepper, drinking plenty of water. Use of barley, green gram, etc., in daily diet is advisable.

- Anointing body with chandan paste (sandal wood) keeps the skin temperature normal. Alcohol, excessive exercise or hard work, excessive sexual indulgence etc., has to be avoided.

II. DAIVAVYAPASRAYA CHIKITSA (Divine therapy)

The root cause of *Janpadodhwansa* is unrighteousness (*Adharama*) that also arises from the misdeeds of previous life. But the source of both is intellectual error (*Pragyaapradha*). For correcting this intellectual error or sin Ayurveda recommend a different type of treatment modality based on religious faith known as *Daivavyapasraya chikitsa*. In this treatment modality ones religious faith is use to tranquilize its thought processing. As most of the individual belongs to some religious community, the faith on respective religion is deeply rooted in mind and therefore this is easiest way to modulate thought processing. This is basically a type of psychotherapy

Pharmacodynamic Properties

Ashwagandha **Immunomodulatory activity:** Ashwagandha can offer multi-target effects in inflammatory conditions by restoring immune homeostasis. In the treatment of COVID-19, broad immunosuppression leading to anti-inflammatory effect may delay virus clearance by impairing induction of antiviral immunity¹¹. In such a scenario, Ashwagandha can be beneficial as it promotes immune homeostasis rather than unidirectional immune suppression or immune stimulation¹². A selective Th-1 up regulating activity of *Withania somnifera* was demonstrated in mouse models. In a study, prophylactic administration of WS was found to modulate Listeria-induced suppression by inducing myeloid progenitors in the bone marrow and increased IFN-gamma levels¹³. In another experiment, immunorestorative activity of *W. somnifera* was reported in an anaphylaxis model. In tumour models, *W. somnifera*-derived fractions showed significant immunomodulatory activity by counteracting the myelosuppressive effects¹³ of chemotherapy and inducing an improved immune response leading to reduction of tumour size.

Withania somnifera

Anti-toxin effects: In infection models, pre- and co-administration of *W. somnifera* extract with DPT (diphtheriapertusis tetanus) vaccine resulted in efficient protective immune responses against lethal challenge of diphtheria and pertussis toxins¹⁴.

SARS-CoV-2^(refs 15,16): Ashwagandha would be an effective agent in the management of COVID-19 through modulation of host Th-1/Th-2 immunity. *W. somnifera* may be beneficial in inducing anti-viral immunity (owing to increased IFN- γ responses) and optimum anti-inflammatory activities (downregulation of IL-1, IL-6, TNF α and other inflammatory mediators) which are the key targets relevant to COVID-19. A recent study claims that Withaferin A from *Withania somnifera* may inhibit novel coronavirus (COVID-19) entry by disrupting interactions between viral S-protein receptor binding domain and host ACE2 receptor. Withaferin A from *Withania somnifera* showed significant binding to the targets proteins Spike (S) glycoprotein, main protease (Mpro) and RNA-dependent RNA-polymerase (RdRp)¹⁵.

Giloy
Tinospora cordifolia

Immunomodulatory activity^{17,18}: TC is reported to boost the phagocytic activity of macrophages, production of reactive oxygen species (ROS) in human neutrophil cells, enhances nitric oxide (NO) production by stimulating splenocytes and macrophages suggesting its anti-tumor effects. TC aqueous extracts has been reported to influence the cytokine production, mitogenicity, stimulation and activation of immune effect or cells. *In vitro* evidences shown that it up-regulates the IL-6 cytokines facilitating the acute response to injuries, inflammation, activation of cytotoxic T cells and also B cell diffraction¹⁹.

Anti-toxic effect: TC exhibit anti-toxin effect due to its antioxidant property. It has been reported to scavenge free radicals generated during aflatoxicosis²⁰. It is shown to have nephroprotective and hepatoprotective properties against the aflatoxins and lead nitrate induced toxicity. It is also found to be very beneficial in overcoming the Cyclophosphamide induced toxicities during cancer treatment²¹.

Anti-viral activity: TC has HIV protease inhibitor activity, it is reported to interfere with the gp 120/CD4 interaction and inhibit HIV-reverse transcriptase showing its antiviral efficacy for HIV²². TC aqueous extract was evaluated for Infectious bursal disease (IBD) of young chicks caused by infectious bursal disease virus (IBDV) and found to be significantly reduce the mortality rate and enhancing the immunity. Authors have suggested its use as immunomodulator in viral diseases²³.

(contd.)

Pharmacodynamic Properties (contd.)

Berberine (B₁) an isoquinoline alkaloid present in TC and it is reported for having antimicrobial, antibacterial, antimalarial, antipyretic, antitumour and antiprotozoal activities²⁴. Berberine is reported for having antiviral effects on the influenza virus. It inhibits viral pneumonia by repressing inflammatory substances release²⁵.

Antimicrobial activity: TC methanolic extract showed potential antimicrobial activity against *Salmonella typhi*, *Escherichia coli*, *Klebsiella pneumoniae*, *Staphylococcus aureus*, *Proteus vulgaris*, *Shigella flexneri*, *Salmonella paratyphi*, *Salmonella typhimurium*, *Pseudomonas aeruginosa*, *Enterobacter aerogene*, and *Serratia marcescens* (Gram-positive bacteria)²⁶. TC improved phagocytic activity and intracellular bactericidal capacities of neutrophils thereby help in bacterial clearance²⁷.

Mulethi
(*Glycyrrhiza glabra*)

Immunomodulatory effect: Glycyrrhizin, the main chemical constituent of *Glycyrrhiza glabra* has shown various immunomodulatory activities that can interfere with immune responses by targeting the dendritic cells. It is found to up-regulate the expression of CD40, CD86 and MHC-II maturation markers on dendritic cells as well as enhances the production of IL-12 by these cells. Glycyrrhizin increases IFN- γ and IL-10 and reduces IL-4 production²⁸. *G. glabra* is having potent anti-oxidant activity virtue of which it has immunostimulatory activity²⁹.

Anti-viral activity

- **Against SARS-CoV-** Glycyrrhizin is reported to inhibit SARS-coronavirus (SARS-CoV) replication in vitro³⁰.
- **Hepex Simplex virus(HSV-1):** Glycyrrhizic acid documented to inhibits the growth of several DNA and RNA viruses in in-vitro studies and inactivates Herpes simplex 1 virus irreversibly³¹.
- **Japanese encephalitis virus:** Licorice and glycyrrhizin from *G. glabra* were tested for antiviral activity against three strain of Japanese encephalitis virua (JEV) and found to inhibit plaque formation in all three strain³².
- **Hepatitis B virus (HBV) & HIV-1:** *G. glabra* is found to reduce membrane transportation and sialylation of hepatitis B virus surface antigen. It reduces membrane fluidity leading to inhibition of fusion of the viral membrane of HIV-1 with the cell. It also found to reduce viral latency³³.

Karanja
(*Caesalpinia crista*)

Anti-viral activity: Aqueous, ethanol and methanolic extracts of *C. crista* showed complete inhibition on paramyxovirus and highly significant inhibitory activity on orthomyxovirus³⁴.

Immunomodulator activity³⁵: *In vivo* studies showed that *C. bonducella* possesses potential immunomodulatory activity. Ethanolic extract of *C. bonducella* seeds increase significantly neutrophil adhesion in percent and dose-dependent increase in antibody titre values, and potentiated the delayed-type hypersensitivity reaction induced by sheep red blood cells. It also found to prevent myelosuppression in cyclophosphamide drug treated rats.

Anti-malarial activity³⁶: Phytochemicals isolated from *C. crista* showed potent anti-malarial activity. Cassane and non-cassane type's diterpenes isolated from *C. crista* potent activity against malaria parasite *Plasmodium falciparum*. The potency is even more than chloroquine.

(contd.)

Pharmacodynamic Properties (contd.)

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| Kutaki <i>Picrorhiza kurroa</i> Royle ex Benth) | <p>Immune stimulatory activity^{37,38}: <i>P. kurroa</i> extract was found to stimulate the cell-mediated as well as humoral components of the immune system and phagocytosis in experimental animals. Its extract is found to improve the responsiveness of murine splenocytes to T cell mitogens phytohaemagglutinin and concanavalin A (Con A) and B cell mitogen lipopolysaccharide.</p> <p>Anti-viral activity^{39,40}: Bis- iridoid glycosides and iridoid glycosides isolated from the n-butanol extract of the stem of <i>P. kurroa</i> showed significant inhibitory activity against Viral Protein R without having any cytotoxicity. Iridoids present in <i>P. kurroa</i> is reported for having potent in vitro activity against respiratory syncytial virus RSV (A2 strain), hepatitis B viral DNA replication in vitro, para-influenza type 3 virus, herpes simplex type I (HSV-1), vesicular stomatitis virus (VSV) and poliovirus type 1.</p> |
| Saptaparna <i>Alstonia scholaris</i> | <p>Effect on respiratory system⁴¹: The alkaloids fraction of <i>Alstonia scholaris</i> leaf is found to have anti-tussive, anti-asthmatic and expectorant activities. Picrinine is the main anti-tussive and anti-asthmatic compound found in <i>Alstonia scholaris</i> leaf.</p> <p>Anti-viral activity⁴²: Cystine knot α-amylase inhibitors named alstotides discovered from the <i>A. scholaris</i> display antiviral activity. Alstotides are antiviral and cell-permeable to inhibit the early phase of infectious bronchitis virus and Dengue infection, in addition to their ability to inhibit α-amylase.</p> <p>Immunomodulator activity^{43,44}: It is found that a combination of alkaloids and triterpenes of <i>A. scholaris</i> (Linn.) leaves enhances immunomodulatory activity in C57BL/6 mice and induces apoptosis in the A549 cell line. Its aqueous extract found to enhance phagocytes activity and induces cellular immune response but at higher doses it inhibits delayed type hypersensitivity response in BALB/C mouse.</p> |
| Kirattikta <i>Swertia chirata</i> | <p>Anti-viral activity⁴⁵: <i>In-vitro</i> and molecular studies showed that <i>Swertia chirata</i> extract significantly inhibited Herpes simplex virus (HSV) Type-1, plaque formation at more than 70%, 4 h post infection dose, suggests drug inhibited viral dissemination.</p> <p>Human Immunodeficiency Virus⁴⁶: Swertifrancheside isolated from <i>S. franchetiana</i> was found to be potent inhibitor of the DNA polymerase activity of human immunodeficiency virus-1 reverse transcriptase (HIV-1RT).</p> <p>Thrombolytic and anti-inflammatory activity⁴⁷: <i>In vitro</i> studies the thrombolytic activity of the crude ethanol extract of <i>S. chirata</i> found to have significant, thrombolytic activity with maximum effect of 40.38% while the standard streptokinase have 69.35% inhibition. Thus it may prove beneficial in subjects having idiopathic Kawasaki disease causing inflammation of blood vessels and clot formation leading to high mortality and bad prognosis.</p> <p>Immune-suppressive activity⁴⁸: <i>S. chirata</i> have potent immunosuppressive activity. <i>In-vitro</i> studies showed that the extract of <i>S. chirata</i> significantly decreases the production of CD3 and IFN-γ. Phytochemical such as phenolic compound -flavonoids, tannins and alkaloids may be responsible for the activity.</p> |

that is helpful in regularizing one inner thought process or it is one of the methods for neuroplasticity in very simplest way. *Mantra, Aushadha, Mani, Mangala, Bali, Upahara, Homa, Niyama, Prayaschitha, Upavasa, Swasthyayana Pranipata* and *Yathragamana* are depicted for *Daivavyapasrayachikitsa*.

III. SATVAVAYAJAYA CHIKITSA (Psychotherapy)

Ayurveda gives a very inclusive methodology for maintaining mental health and treating mental disorders known as *Satvavajaya Chikitsa*. This treatment methodology contains the thought modulation technique (just like neuroplasticity) that

helps in regulating thinking process, channelize presumptions and determining objectives to achieve day to day goal. *Achara Rasayana* is also a part of *atvavajaya chikitsa* to teach conduct regulation in daily practice for the prevention of mental disorders. In the present situation, it is very important to apply this Yogic technique to maintain healthy mental status of infected as well as non-infected population. It holds simple practicing techniques like- avoid alcohol and maintain celibacy, avoid violence, avoid exhaustion, excessive thinking, indulge in creative activities, be cheerful, spread happiness by using pleasing words, chant any religious phrase, keep patience and have courage, indulge in the work of charity, avoid impolite behavior, respect God, elders and teachers, etc. The best way to teach this mental attitude is to display good conduct guidelines on social media and electronic media.

Shodhana Chikitsa (Detoxification therapy)

Detoxification or biopurification term can be use to explain the meaning of Panchakarma in border sense to non-Ayurvedic personals. As per Acharya Charaka, *Rasayana* and *Sodhana* (Panchakarma) are two treatment modalities for epidemics. Panchakarma includes five purification procedures viz., *Vamana* (emesis), *Virechana* (purgation), *Nasya* (nasal instillation), *Basti* (medicated enema) and *Raktamokshana* (blood-letting). These five procedures are use in different disease conditions based on their specific indications. Main objective of *Panchakarma* is to remove endotoxins from body. Proper *Panchakarma* helps in reducing oxidative stress, reduces cellular hypoxia, remove the accretion of inflammatory cytokines (preventing cytokine storm) and prevents premature cellular damage.

Samana Chikitsa (Pacification therapy)

It includes use of herbs and herbo-mineral preparations for the prevention as well as management of COVID-19. Few herbs which are approved by the Ministry of AYUSH for the prophylaxis use in COVID-19, based on research trials is discussed below along with their pharmacodynamic properties-

Discussion

Social media, electronic media and print media are three powerful sectors for spreading awareness regarding COVID-19 which is almost unknown for world before December 2019. In an attempt to

provide the simple, household remedies for non-scientific and scientific community simultaneously is the sole objective of this article. The article gives a very comprehensive overview regarding the holistic care plan for SARS-CoV-2. COVID-19 or SARS-CoV-2 is a new variant of corona virus family having human ACE receptor which gives its uniqueness in determining fatality. This highly contagious virus bring the world to bow down on its knee, exposed the helplessness of all the biggest and ever richest health care system, health organizations and superpower countries. In this pandemic, Ayurveda with its treasure of herbs, Yogic technique and holistic approach light the flame of hope high and provides esteemed courage to combat the disease. This pandemic once again realizes the scientific community that the holistic approach of health care is the only and ultimate way of getting healthy life. Including few healthy habits in daily routine with slight modulation in life style can drastically change the health status (more nearer to healthy state). The above mentioned prophylactic measures are easy to apply, cost worthy and highly beneficial. Above mentioned herbs can be taken in different forms like:

- Ashwagandha churna- 6 g once in a day with luke warm milk or water at breakfast. For female it may be taken in reduce and divided doses as 3g twice in a day preferable empty stomach. These doses are for *Rasayana* purpose, therapeutic dose of Ashwagandha may vary according to disease and assessment of physician.
- Giloy: It can be taken as powder, tablet or decoction form. Samsamni Vati in the dose of 500 mg (2 tablets) can be taken twice in day with luke warm water. Giloy in powder form can be taken as 3g twice in a day with luke warm water.
- Mulethi churna: 3 g of powder can be taken twice in a day with luke warm water or milk empty stomach or it can be boiled in 1 cup of milk mixed with 1 cup of water till it remains one quarter. Mulethi should not be given in diabetic and hypertensive patients.

Ayurveda is based on principle of comprehensive health care system with multiple constituents-multi targets-synergistic effects for different diseases and therefore all the above measures use collectively will definitely prevent any dreaded disease.

Conclusion

The article is written considering the need of global awareness about the treatment modalities of Ayurveda

to help scientific community in searching effective way out for combating COVID-19 pandemic. This is high time to understand the rationality of holistic approach and spreading the knowledge of healthy living to each and every individual to prevent SARS-CoV-2 like dreaded disease presently and in future.

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