



Review Article

PROPHYLACTIC MEASURES AGAINST COMMUNICABLE DISEASES W.S.R TO COVID-19: AN AYURVEDIC APPROACH

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ABSTRACT

Ayurveda, the ancient treasure of medical knowledge descended to earth with two aims to serve human beings i.e. *Swsathasya swasthya rakshanam* (Promotive and Preventive measure) and *Aturasya vikara prashamanam* (curative measures). Ayurveda categorized diseases into two *Nija* (diseases caused by endogenous factors) and *Agantuja* (diseases caused by exogenous factors). The term *Agantuja* implied in broad spectrum under which external trauma and organisms such as bacteria, virus, fungi all been incorporated. Ayurveda described communicable diseases and their causes, mode of transmission, prevention as well as cure under *Janapadodhwamsa* (Epidemics), *Aupasargika roga* (infectious diseases), *Sankramika roga* (Communicable diseases). In promotion of health and in prevention of diseases, Ayurveda prescribed prophylactic measures like *Dinacharya* (daily regimen), *Ritucharya* (seasonal regimen), *Sadvritta* (good personal and social conducts), *Rasayana* (Rejuvenation therapy) etc. In this article an honest attempt has been made to review systematically the prophylactic measures against communicable diseases with special reference to COVID-19 pandemic- a challenging task for medical fraternity all over the world.

KEYWORDS: *Nija, Agantuja, Communicable diseases, Covid-19, Dinacharya, Ritu shodhana, Sadvritta.*

INTRODUCTION

Ayurveda is the science of knowledge regarding life which deals with the wholesomeness and unwholesomeness to the life¹ and tells about the way life to live hundred years without suffering from diseases². The dichotomous uses of Ayurveda are maintenance of health of a healthy individual and combating the diseases in diseased person³. As per Ayurveda the *Sareera* (Body) is composed of *Dosha* (humours like *Vata, Pitta* and *Kapha*), *Dhatu* (Tissues like *Rasa, Rakta* (Blood), *Mamasa* (Muscle) etc.) and *Mala* waste products like *Pureesha* (fecal matter), *Mutra* (Urine) and *Sweda* (Sweat)⁴. Ayurveda recognizes health as a state of equilibrium of *Dosha, Dhatu, Mala* and *Agni* (Digestive fire) function along with well-being of mind, sense organs and soul⁵ and in other hand disease are due to their disequilibrium or abnormal state⁶. To maintain the health of a healthy individual and to prevent the diseases Ayurveda prescribed principles under the heading of *Swasthavritta* (Hygiene and Public health) which includes proper observation of *Dinacharya* (Daily regimen), *Ritucharya* (Seasonal regimen), *Sadvritta* (Code of Good conducts of life) and *Rasayana sevana* (Rejuvenation therapy). The general causes for diseases are *Asatmyendriyarthasamyoga* (Misuse of

senses), *Kala/Parinama* (Seasonal Variation) and *Prajnaparadha* (Misuse of intellect)⁷. The diseases generally classified as *Nija* (endogenous) and *Agantuja*⁸ (Endogenous) which can be compared with Communicable and Non- Communicable diseases respectively according to contemporary science. Ayurveda has mentioned treatment principles for both *Nija* and *Agantuja*⁹. In this article an honest and sincere effort has been made to review systematically the scattered prophylactic measures against communicable diseases including covid-19 by incorporating principles of contemporary science.

Objectives: To review the communicable diseases and their prophylactic measures which are scattered in Ayurvedic texts.

Methodology: A systematic literary review of communicable diseases and prophylactic measures has been made through available *Samhitas* of Ayurvedic and texts of contemporary medicine.

Communicable Diseases and Ayurveda

Communicable disease is defined as an illness due to a specific infectious agent or its toxic products capable of being directly or indirectly transmitted from man to man, animal to animal, or from the

environment (through air, dust, soil, water, food etc) to man or animal¹⁰ which includes infectious and contagious diseases. In Ayurveda, the terms like *Samsargaja*¹¹, *Upasargaja*¹² and *Sankramika roga*¹³ denotes contagious, infectious and communicable diseases respectively.

While classifying diseases, Acharya Susruta included communicable diseases like *Upasargaja* and *Samsargaja* comes under *Daiva bala pravritta vyadhi* (curses of humiliated divine beings)¹⁴. Acharya Vagbhata mentioned under *Agantuja roga* (exogenous diseases)¹⁵ which are caused by *Bhoota* (micro organisms), *Vayu* (polluted air) etc. *Charak acharya* explained the causes, manifestation, prevention and management of communicable diseases in detail under the heading of *Janapadodhwamsa*- the factors like polluted air, water, land and abnormal season which destroys the health of the group of the people (Epidemics)¹⁶. In another context where communicable diseases are described is in the infestation of parasites (*Krimi*). A number of ectoparasites and endoparasites, minute and large ones those live in various parts of the body and cause diseases are described in Ayurveda. There is mentioning of *Aupasargika rogas* like *Masurika* (Chickenpox), *Romantika* (measles)¹⁷, *Upadamsa*¹⁸ (Gonorrhoea) and *Phiranga*¹⁹ (Syphilis).

Causes of Communicable Diseases

1. General debility or weakness is said to be predisposing cause for infectious diseases.²⁰

2. Janapadodhwamsa: Natural calamities including epidemics and pandemic diseases are described under this topic. Such diseases having similar signs and symptoms affecting many people of a town or state at a time can destroy the whole town, so they are called *Janapadodhwamsa* (*Japadaanaam udhwamsakara miti janapadodhwamsa*). According to Charaka, these diseases are caused by the vitiation of environmental factors like *Vayu* (air), *Jala* (water), *Desha* (land) and *Kala* (climate). *Yuddha* (war) and other man made calamities are also causative factors for *Janapadodhwamsa*. Cakrapani, the commentator of Caraka says there are two kinds of causes for diseases: *Sadharana* (typical) and *Asdharana* (atypical). Atypical is subjective cause that varies

from individual to individual like food, habits etc., which vitiates *Doshas* (bodily humors). Typical is common to many people like air, water etc., diseases are due to such common causes are called *Janpadodhwamsa*. The primary cause for vitiation of these factors is *Adharma* (unrighteous activities). *Poorvajanma papakarya* (Deleterious effects of the deed of previous birth) also cause *Janapadodhwamsa*. Both these cause *Prajnaparadha* (misuse of intellect- commonly it can be interpreted as knowingly doing wrongs), which will vitiate the external environment and internal *Doshas*. *Prajnaparadha* is described in *Charaka Samhita* as people indulging in unwholesome activities due to ignorance, lack of understanding, loss of memory which vitiates all *Doshas*. It is clear from the above, that this will again leads to *Adharma* and cause diseases.²¹

3. Bhutabhisanga: Caraka says *Aabhisagaja jwara* one among the *Agantuja jwara* (fever caused by extraneous factors) is caused by the afflictions of passion, grief, fear, anger and evil spirit including germs (*Bhoota*). *Vayu* gets aggravated by the passion, grief and fear. *Pitta* is aggravated by anger. All the three *Doshas* are aggravated by the affliction of *Bhoota* (evil spirits or germs or micro organisms) simultaneously, the signs and symptoms of the respective type of *Bhoota* are also manifested here²². According to some, the *Jwara* caused by the contact of the poisonous air of the toxic plants and such other toxins is also called *Abhisangaja jwara*. This type of *Jwara* gets cured by the administration of antidotes of these poisons.²³

Modes of transmission of diseases: Acharya Susruta and Vagbhata explained the modes of diseases transmission in the context of *Kushta Roga* (Skin disorders).²⁴ Frequent touching of the body of the patient, inhaling his expired air, dining, sleeping and sitting together, wearing dress, garlands, and unguents used by patient are the modes of transmission of diseases like *Kushta* (Leprosy and some skin diseases), *Jwara* (Fever), *Sosha* (consumption- pulmonary TB), *Netrabhisyananda* (Conjunctivitis) and *Aupasargika rogas* (infectious diseases) spreads from one person to another. This concept can be illustrated as follows.

Table 1: Modes of transmission

S.no	Mode of transmission (Ayurveda)	Mode of transmission (Modern)
1	<i>Gatra samsparsat</i> Touching the skin (body)	Direct Direct contact with skin to skin, mucosa to mucosa.
2	<i>Niswasat</i> Contact with exhaled air	Direct Droplet infection (Air-borne) (inhalation)
3	<i>Saha bhojanat</i> Eating together	Direct /Indirect Food and drinks (ingestion)
4	<i>Saha shayyat</i> Sleeping together	Direct Direct contact

5	<i>Saha asanat</i>	Sitting together	Direct	Direct contact
6	<i>Vastropayoga</i>	Sharing of clothes	Indirect	Fomite -borne
7	<i>Malyopayoga</i>	Sharing of garlands	Indirect	Fomite- borne
8	<i>Anulepana</i>	Sharing of cosmetics	Indirect	Fomite-borne

Control measures of *Janapadodhwamsa* (Epidemics)

The term Control describes ongoing operations during disease attack to reduce the incidence, duration, risk of transmission and effects of infection or vitiated factors and also to reduce the financial burden to the community. Control activities focus on both primary and secondary prevention. During *Janapadodhwamsa* the control measures are particularly focus on secondary prevention which comprises following activities. a. *Bheshaja Prayoga* (Administration of Medicine) b. *Panchakarma* (Bio-penta purification therapy) c. *Rasayana sevana* (Rejuvenation therapy) d. *Deha vritti* (maintenance of Physical health) e. *Sadvritta palana* (Observance of Good conducts).²⁵

***Bheshaja prayoga* (Administration of Medicines)**

The medicines which are collected before *Janadodhwamsa* (Epidemics) should be administered during epidemics as per the manifestation of characteristic features of vitiated factors *Panchakarma* (Purificatory therapy): Those who are not having identical actions during the previous life and those who are not destined to die during the epidemics for their cure *Panchakarma* (viz. *Vamana* (emetic therapy), *Virecana* (purgative therapy), *Niruha basti*, *Anuvasana basti* (medicated enema) and *Nasyakarma* (nasal medication) therapies are the best.

***Rasayana therapy* (Rejuvenation therapy):** After *Sodhana* by *Panchakarma*, the affected individuals should be administered *Rasayana* therapy.

***Dehavritti* (Maintenance of Physical Health):** After administration of *Rasayana* therapy, the affected individuals will be given instructions to follow prophylactic measures to maintain the physical health.

***Sadvritta palana* (observance of Good conducts):** Affected individual should follow the *Sadvrittas* like *Satya* (truthfulness), *Bhute daya* (compassion for living beings), *Daana* (Charity), *Balee* (sacrifices), *Devataarchanam* (Prayers to God), *Sadvrittasya anuvrittischa* (Adoption of preventive measures),

Prasahamo (maintaining tranquility), *Guptiraatmanam* (Protection of self by chanting mantras etc.), *Hitam janapadaanaam* (seeking one's own good), *Shivaanaam upasevanama* (Residing in auspicious locality), *Sevanam Brahmacharyasya* (observance of Celibacy), *Sevanam Brahmacharinaam* (Service to those observing celibacy) *Samkatha dharma sastraanaam maharshinaam jitaatmanaam* (discussion of religious scriptures, great sages and those who have self-control), *Dharmikaihi sattvikairnityam sahaasyaa vridha samvataihi* (constant association with religious, *Saattvika* and learned persons)

The above therapies should be adopted during epidemics will save the individuals life provided the death of a particular individual during the period is not predestinated. Apart from above the persons should also follow the rules and regulations led by authorities during epidemics and should not involve in Anti-social activities.

Prevention of *Agantuja roga* (exogenous diseases)²⁶: *Agantuja* or exogenous diseases are caused by *Bhoota* (evil spirit or germs or microorganisms) *Visha* (poison) etc., can be prevented by taking recourse to the avoidance of *Prajnaparadha* (intellectual error) *Indriyopasamaha* (restraint of sense organs), *Smritihi* (good memory) *Desakala atma vijnanam* (knowledge of place, time, and one's own capability and *Sadvrittasyanuvartanam* (good conducts)

Prophylactic measures of Ayurveda

Ayurveda described prophylactic measures such as *Dinacharya* (Dialy regimen), *Ritucharya* (Seasonal regimen), *Trayopastambha palana* (proper observance of *Ahara* (Food), *Nidra* (Sleep) and *Brahmacharya* (Celibacy/safe sexual practices), *Sadvritta palana* (Good conducts/ethics) and *Rasayana sevana* (Rejuvenation therapy) which promotes comprehensive health as well improves general immunity against of diseases thus prevents the occurrence of diseases.

Table 2: Dinacharya procedures which are helpful in preventing the entry and inhibiting the growth of the micro organisms and also secondary prophylaxis in case of post infected subjects. ^{27,28}

S.No	Procedure		
1	<i>Kavala/Gangusha</i>	Gargling	plain hot water / hot water and salt /decoction prepared with <i>Triphala</i> and <i>Madhu</i> (Honey)
2	<i>Mukha, netra, pada</i> and <i>pani prakshalana</i>	Frequent washing of face-oral cavity, eyes, hand and feet	<i>Sukhoshnodaka</i> (lukewarm water)
3	<i>Anjana</i>	Application of collyrium to the eyes	<i>Souviranjana</i>
4	<i>Pratimarsa nasya</i>	Nasal medicaments	two drops medicated oil /ghee into each nostril minimum of two times daily morning and night
5	<i>Dhoomapana</i>	Medicated smoking	Turmeric+Ghee spreading over cotton gauze rolled and ignited for inhalation of smoke two times daily.
6	<i>Vyayama</i>	Physical exercise	To be done with half of the persons strength or moderate
	<i>Abhyanga</i>	Oil massage	Daily with suitable oil like sesame or mustard oil
	<i>Snana</i>	Bathing	Daily with hot water
	<i>Vastramalyanulepa</i>	wearing clean dress, having fresh garlands and natural perfumes	Daily wearing clean dress and perfumes which are aesthetic to be used to maintain personal hygiene
	<i>Ahara vidhi</i>	following rules and regulations of food intake	Ayurveda described principles like when to take, what to take, where to take,how much to take and how to take.
	<i>Nityam ksheera ghrishanam</i>	drinking of milk and intake of ghee every day	Milk especially during night and ghee adding to food
	<i>Rasayana sevana</i>	Rejuvenation therapy	Intake of Indian gooseberries, milk, ghee daily. <i>lehyas</i> (linctus) like <i>Chyavan prash</i> , <i>Kusmanda rasayana</i> preparations and following <i>Achara rasayana</i> –observing moral conducts
	<i>Sadvritta palana</i>	Observance Good conducts	Following individual disciplines and social disciplines such as obeying rules and regulations made by authorities.
	<i>Dhoopana</i>	Fumigation	Frequent fumigation of dwelling places with <i>Nimba</i> (neem), <i>Tulasi</i> (basil), <i>Haridra</i> (Turmeric), <i>Vacha</i> (Acorns) +Ghee etc.

Table 3: Sadvritta (Good conducts of life) in preventing communicable diseases

Mode of transmission	Sadvritta principle	Diseases can be prevented
Direct Contact- Infection spread by direct contact from skin to skin, mucosa to skin or mucosa to mucosa of same or another person. ²⁹	One should not sleep or sit together and should not perform sexual intercourse with a woman having menses or some disease, impure, inauspicious, and other's women or in female organ of other than human being or other than female vagina. ³⁰	STD, AIDS, leprosy, leptospirosis, skin and eye infection and viral infections including corona.
Droplet infection- This is direct projection of a spray of droplets of saliva and naso-pharyngeal	One should not yawn, sneeze, and laugh without covering the mouth one should not urinate on road, in crowded place and	Respiratory hygiene and cough etiquette, which are infection prevention

secretions during coughing, sneezing or speaking and spitting, talking into the surrounding atmosphere. ³¹	while taking food. One should not let out mucous nasal excreta at the time other than cleaning of face or bath. And also person should keep far away from other persons to prevent inhalation of expired air from them. ³²	measures to decrease the transmission of respiratory illness as Viral infections including corona.
Contact with soil- The disease agent may be acquired by direct exposure of susceptible tissue to the disease agent in soil, compost or decaying vegetable matter in which it normally leads a saprophytic existence. ³³	One should walk having umbrella, stick, turban and foot wear. Person should not scrap the earth, pluck the grass or weeds and nor should come in contact with mud or grind the mud lump. ³⁴	hookworm larvae, tetanus, mycosis etc.
Inoculation into skin or mucosa- The disease agent may be inoculated directly into the skin or mucosa. ³⁵	One should not go near snakes or animals with dangerous teeth & horns. One should avoid bones, thorns, impure piercing articles, hairs, chaff, and garbage etc. ³⁶	Rabies virus by dog bite, hepatitis B virus through contaminated needles and syringes etc.
Vehicle-borne- This implies transmission of the infectious agent through the agency of water, food, ice, blood, or other biological products such as tissues and organs. ³⁷	One should not eat in unclean utensil, nor eat dirty meal served by the unclean opponents and also without wearing gems on hand, without reciting mantras, in improper place where garbage accumulated on streets, places of worship, near water sources, public places like hospitals, parks, schools etc. and in crowded surroundings, nor should have stale things. ³⁸	E.g. acute diarrheas, typhoid, fever, cholera, polio, hepatitis A, food poisoning, etc
Vector-borne -Vector is defined as an arthropod or any living carrier (snail) that transports an infectious agent to a susceptible individual. Transmission by a vector may be mechanical or biological. ³⁹	One should wash twice a day, cutting of hair & shaving, one should always wear clean clothes and nor put on the same cloths after bath. ⁴⁰	Bacterial and viral
Airborne- Droplet nuclei are a type of particles implicated in the spread of airborne infection. They are tiny particles (1-10micron) that represent the dried residue of droplets. Some of large droplets which settle down by their sheer weight on the floor, carpet, clothes, bedding, etc. ⁴¹	One should wear auspicious herbs; one should apply oil to head, ear, nose and feet daily, try to purify air and one should not scrap or broom the roof. ⁴²	TB and some viral infections
Fomite-borne- Fomite are inanimate articles or substances other than water or food contaminated by the infectious discharges from a patient and capable of harboring and transferring the infectious agent to a healthy person. ⁴³	One should always wear clean and untorn clothes, and should not have food in unclean plates, along with wearing dress, garlands and unguents used by other person before. ⁴⁴	Soiled clothes, towels, handkerchiefs, glasses, spoons, etc – bacterial and viral diseases including Covid.
Unclean hands and fingers -	One should not eat without wearing gems	Bacterial and viral infections

Hands are the most common medium by which pathogenic agents are transferred to food from the skin, nose, bowel, etc as well as from other foods. The transmission takes place both directly (hand-to-mouth) and indirectly. ⁴⁵	on hand, without taking bath, without washing hands, feet & face, with unclean mouth, having unclean attendants. One should not let out mucosa nasal excreta at the time of having food. One should clean excretory passages and feet frequently. ⁴⁶	
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According to WHO viral diseases continue to emerge and represent a serious issue to public health. In 20 years several viral epidemics such as SARS-CoV, H1N1, and MESR-CoV was identified in different parts of the world. At present the whole world is experiencing the effect of new viral disease known as COVID-19 caused by novel corona virus (Ncovid) which is renamed as severe acute respiratory syndrome corona virus2 (SARS-CoV-2). It is affecting all corners of human being in the world irrespective of their socio economic, racial, sexual, geographical boundaries and became pandemic. The disease causes respiratory illness (like the flu) with symptoms such as cough, fever and in more severe cases, difficulty breathing. Corona virus disease spreads primarily through contact with an infected person when they cough or sneeze. It also spreads when a person touches a surface or objects that has the virus on it, and then touches their eyes, nose or mouth. People with COVID-19 generally develop signs and symptoms, including mild respiratory symptoms and fever, on average of 5-6 days after infection (mean incubation period 5-6 days, ranges 1-14days). Most people infected with COVID-19 virus have mild disease and recover. People of all ages can be infected by the new corona virus (2019-vCoV). Older people and people with pre-existing conditions (such as Asthma, Diabetes and Heart diseases) appear to be more vulnerable to becoming severely ill with the virus. WHO advises people of all ages to take steps to protect themselves from the virus, for example by following good health and good respiratory hygiene. In development of this disease immunity plays an important role as with proper immunity the risk of developing, survival rates and recovery time can be reduced⁴⁷.

At present there is no vaccine to prevent the COVID and no significant treatment for COVID -19, only the therapeutic strategies to deal with the infection are supportive and prevention aimed at reducing transmission in the community is the only weapon⁴⁸. The Ayurvedic prophylactic measures mentioned in *Janapadodhwamsa* (Epidemics) and *Sankramika roga* (Communicable diseases) are having significant role in preventing the entry and inhibiting the growth of the COVID-19 and also acts

as secondary prophylaxis in case of post infected COVID subjects by improving the immunity.

DISCUSSION

The communicable diseases including COVID-19 can be compared with *Abhishangaja jwara* (fever due to microorganisms), *Sankaramika roga* (Communicable disease), *Janapadodhwamsa* (epidemics) which are said to be *Maraka 48* (affecting or killing large population) to the community. Specific measures like *Sthana parityaga* (change of place of living-Quarantine), *Homa-japa* (auspicious rituals) *Niyama* (observing rules and regulations), *Dana* (charity), *Dhoopana* (Fumigation), *Panchakrma* therapy (purification), *Rasayana chikitsa* (Rejuvenation) and *Oshadha prayoga* (Medicaments) has been mentioned which are beneficial in this condition. Observing *Sadvrittis* (good conducts) like one should not yawn, sneeze, and laugh without covering the mouth. Person should not urinate on road, in crowded place and while taking food. One should not let out mucous nasal excreta at the time other than cleaning of face or bath. And also person should keep far away from other persons to prevent inhalation of expired air from them and should avoid *Prajnaparadha* (knowingly doing wrongs). WHO advises people of all ages to take steps to protect themselves from the virus, for example by following good health and good respiratory hygiene. In development of this disease immunity plays an important role as with proper immunity the risk of developing, survival rates and recovery time can be reduced. By Ayurvedic *Rasayana* formulations immunity can be enhanced.

CONCLUSION

The outbreaks of communicable diseases are not new to Ayurveda, as it describes centuries back its causes, manifestations; transmission and management including prophylactic measures which are scattered has been compiled, analyzed and interpreted in the light of modern theories of epidemiology. The specific preventive principles of Ayurveda, if adopted judiciously will help in preventing all types of infectious diseases including challenging Pandemic COVID-19. These principles can be adopted at Primary Prevention Level to prevent COVID-19 and these may be useful even at secondary and tertiary level to improve immunity thus helps in combating

the disease. More over the preventive tenets described centuries back are very much relevant at this present era as they are accessible, acceptable, adoptable and affordable.

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