

Preventive Measures for Communicable Diseases in *Ayurveda* and Ancient Indian Culture

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Abstract

Ayurveda, an ancient science of life in world, has holistic approach in prevention and management of diseases, broadly classified as communicable and non communicable, depending upon their mode of transmission. Various terms like *Janapadodhwansa* (*Charaka*), *Maraka* (*Sushruta*) and *Janamar* (*Bhela*) have been used to describe the disease epidemic in *Ayurveda* and communicable diseases have been separately described as *Aupasargika Roga*. Interactions among agent, host and environment is responsible for emergence of infectious diseases. An infection is manifested only if agent is able to overcome the host immunity under favorable environment. *Sushruta* opines that without involvement of factors like *Ritu* (suitable season or time), *Beeja* (seed), *Kshetra* (field), and *Ambu* (water) neither a plant nor a fetus can germinate and grow. Same principle can be applied to development of infectious diseases. Among these four factors, suitability of *Kshetra* (human body) is especially important in the context of infectious diseases along with *Beeja* (infective agent), *Ritu* (opportune time allowing the optimal growth of the pathogen) and *Ambu* (nutritional factors favoring the pathogens). *Ayurveda* advocates various preventive measures like avoiding *prasanga* (mutual contact) and *gatrasansparsha* (touching) to break the chain of transmission of infective agents and *rasayana* (rejuvenative therapy) and *panchakarma* (purification procedures) to promote the *kshetra*. Although communicable diseases have been controlled to a large extent with the help of modern preventive measures like vaccination a continued re-emergence of newer infective diseases has made it necessary to re-look the measures of prevention. There is an urgent need to complement them with the traditional knowledge, such as use of the ancient preventive measures and health-promotive measures like *rasayana*. This paper is intended to describe various methods of infection prevention described in *Ayurveda* texts and discusses their relevance in current scenario.

KeyWords: *Aupasargika Roga*, Communicable Disease, *Maraka*, *Janamara*, *Janapadodhwansa*, Prevention, *Agantuja Roga*

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Introduction

Although there had been tremendous development in the field of science and technology as well as medical science in the recent past, the importance of ancient methods of preventing diseases could not be ignored

even in 21st century. At present, it is possible to control many infectious diseases like tuberculosis, diphtheria, pertussis, tetanus etc. with the help of vaccination and antimicrobial treatment¹, the same is not effective against the emergence of a newer pathogen. Recent example in this respect is the COVID-19 pandemic (corona virus disease -19) which has resulted in large number of

deaths worldwide. The recent data indicates that there were about 5.20 million confirmed cases and about 0.337 million deaths all over the world, out of which there were more than 1.56 million positive cases and 94 thousand deaths in United States of America, about 0.344 million positive cases and 3541 deaths in Russian Federation, about 0.330 million positive cases and 21 thousand deaths in Brazil, about 0.257 million positive cases and 36 thousand deaths in the United Kingdom, about 0.235 million positive cases and 28 thousand deaths in Spain and 0.229 million positive cases and 32 thousand deaths in Italy while about 0.138 million positive cases and 4021 deaths were reported from India, (last updated on 25 May 2020). Continuous rise in numbers is being reported from everywhere. Interestingly, the top five countries although having the best health care services could not control the spread of epidemic effectively. *Ayurveda* recommends *sthanatyaga* as a measure to prevent the spread of infectious diseases. *Sthanatyaga* literally means 'leaving the place where the epidemic is sprawling'. If one cannot leave the place, it is advisable to maintain distance from the infected person and community as a protective measure.² The importance of ancient methods of isolation, quarantine, surveillance¹, social distancing and health promotive measures like *rasayana* to boost the immunity becomes highly important in such condition.

Within the rich Indian heritages of knowledge, the importance of *Ayurveda* and *Yoga* is being recognized worldwide. Communicable diseases like tuberculosis, malaria and HIV are major public health problem in India.³ Ancient *Ayurveda* texts have used different terms like *Janapadodhwansa*⁴, *Maraka*⁵ and *Janamar*⁶ to denote the diseases that spread as epidemic. Use of *rasayana* (rejuvenative therapy)⁷ to increase *oja* (essence of *dhatu*s i.e. the structural elements of body) and thus boost the immune system and general measures to prevent transmission of infections such as *snana*⁸ (bath), *sthanatyaga*⁹ (Change of place which is beneficial similar to social distancing or quarantine /isolation), purification

of atmosphere through *yagya*⁹ (burning specific herbs and materials) have been described. SARS (severe acute respiratory syndrome) and COVID-19 are the new challenging infectious diseases posing a great threat to the existence of humanity and the whole world is looking for a solution.¹⁰ There are innumerable number of pathogenic organisms in the nature. Developing and administering vaccines for all the infective pathogens is technically and economically challenging task, especially in developing countries like India. There is also chance of mutations and emergence and re-emergence of infective agents. The world is therefore looking forward for an alternative solution and knowledge available in *Ayurveda* texts, may help us finding a solution. This literary review is attempted to study the concept of communicable diseases in *Ayurveda* and to correlate modern preventive measures to find a possible correlation and application.

Concept of Communicable Diseases

Communicable diseases are caused by a specific infectious agent or its toxic product transmitted from an infected person, animal or reservoir to a host susceptible, either directly or indirectly through an intermediate plant or animal host or vector or inanimate environment.³

The risk factors for communicable diseases include lack of safe water, inadequate excreta disposal facilities, poor hygiene, poor living conditions and unsafe food.¹¹

The risk of their outbreak is increased after disasters either natural like a flood and drought or man made such as war, industrial accident and so on. It may also be due to fecal contamination of food and water or vector and zoonosis.³

Janapadodhwansa specifies the affliction of large number of people within a district/region from disease probably infectious and communicable in nature. Contamination of *Vayu* (air), *Jala* (water), *Desha* (place or soil) and changes in *Kala* (season) are accounted to

be responsible for the diseases leading to *Janapadodhwansha*.¹²

The root-cause of *Janapadodhwansha* is *Adharma* which in this context means non performance of one's duties with honesty or as per rules of the nature or country. *Adharma* arises due to *Pragyaparadha* (intellectual errors occurring knowingly)¹³. It can be understood in present context that wrong deeds performed by human beings from generation to generation like polluting air, water and soil may be the cause of spread of air, water or soil pollution related diseases and also for diseases caused by extreme weather changes due to global warming.

Sushruta has used the term *aupasargikaroga* for the diseases communicating from one man to another. *kushtha* (skin diseases), *jwara* (fever), *shosha* (Emaciation), and *netrabhishyanda* (conjunctivitis) are examples in the case. Different modes of transmission from one to another include *prasanga* (mutual contact), *gatransparsha* (skin to skin touch), *nihashwasa* (exhaled air), *sahabhojana* (sharing food), *sahashaiya* (sleeping closely), *asana* (sitting close to each other), using *vastra* (cloths), *malya* (using garlands) and *anulepana* (using paste of *chandana* etc. on the body after bath)¹⁴. These modes of transmission are still relevant from current epidemiological perspectives.

As per *Sushruta Samhita*, certain diseases like *kasa* (cough), *shwasa* (dyspnoea), *pratishyaya* (rhinitis), *shirahashoola* (headache) and *jwara* (fever) also affect large number of people of a *Janapada* or *Desha* (large area of land or a country) either through polluted or vitiated air or contaminated home, bed, seat, vehicle, gems and other instruments or even through contact of females.⁹ Most of these clinical features may be observed in various infections of respiratory tract in current practices.

According to *Charaka Samhita*, diseases spread through touching of one person by other or by contaminated air and food may cause death of a large

population.¹³ *Maraka* denotes the condition arising from death of large number of people caused by diseases due to contaminated plants or water.⁹

According to *Bhela Samhita*, *janamar* (death of large number of people) may occur due to diseases arising as a result of extreme variations in seasons.¹⁵

Janapadodhwansha can be prevented and controlled by using *Panchakarma* i.e. purification procedures like *vamana* (emesis), *virechana* (purgation), *vasti* (medicated enema) and *nasya* (using medicines through nasal route), *rasayana* and obeying the *sadvritta* (code of conduct).¹³ Warm water has been advised for a patient having *jwara* (fever) and also *langhana* (various methods of fasting), *langhana-pachana* (using herbs that produce lightness and digest *ama* (undigested food) and *doshawasechana* (purification procedures like *vamana*).¹⁶

In *Ashtanga Hridaya*, the term *sanchariroga* has been used for the diseases that communicate from person to person. For example diseases of eye and skin spread from touch, eating at common place or from a common source and sharing the sleeping place.¹⁷ Most of these modes of transmission are observed in respiratory infections like common cold, tuberculosis and eye infections.¹

Preventive Measures for Communicable Diseases

Interaction of agent, host and environment results in various disease. The aim of prevention is to destroy the causative agent or prevent its transmission, promotion and preservation of health of the human host and change the internal and external environment to make it unsuitable for the agents. Primordial preventive measures in *Ayurveda* include healthy lifestyles such as *dinacharya*¹⁸ (day regimen), *ratricharya*¹⁸ (night regimen), *ritucharya*¹⁹ (seasonal regimen), *sadvritta*²⁰ (good conduct) and *achararasayana*²¹ (promotive ethical practices) which help in promotion of host defense.

Primary preventive measures are proper dietary habits such

as *ashta-widha ahar-visheshayatana*²², *Naimittika rasayana*²³ (rejuvenation therapy for specific disease) and age specific *rasayana*. Secondary prevention is achieved through *nidanaparivarjana*²⁴ (avoiding etiological factors) and different types of therapies such as *samtarpana*²⁵ and *aptarpana*²⁵ and avoiding different modes of transmission of *aupasargikaroga*¹⁴. The modern medical science also emphasizes the control of reservoir (by early diagnosis, isolation, treatment and quarantine), interrupting the transmission of the pathogens and protecting the susceptible host by immunization, chemoprophylaxis and other non specific measures such as safe water supply, proper nutrition and sanitation¹.

Diseases may be *nija* (endogenous), *agantuja* (exogenous) and *manas* (mental).²⁶ Communicable diseases come under *agantuja* category and their prevention includes avoidance of *pragyaparadha* (undesirable actions performed despite their knowledge), self control of *indriya* (sensory and motor control) and updation of memory through knowledge about *dosha* (*vata*, *pitta*, *kapha*), *kala* (time) and *atma* (related to self).²⁷

Sushruta advocates the use of uncontaminated herbs and water, *sthanaparityaga*, *shantikarma* (act of pardon), *prayashchita* (expiation), *mangala* (rejoice), *japa* (repeating the name of God), *homa* (a Vedic ritual, offerings in fire), *Upahara* (an offering), *Ijya* (*Yagya*) i.e. offerings in the sacred fire, *anjalinamaskara* (a way of salutation), *tapa* (self-discipline), *nidana* (positive observances), *daya* (compassion), *dana* (donations), *diksha* (initiation in divinity) and worship of *Devata*, *Brahmana*, *Guru* for preventing *Maraka*⁹. To prevent *Janamar* Bhel has mentioned *upahara* (fasting), respecting *vipra* (persons having knowledge), chanting *mantra* and using specific herbs.¹⁵ These measures are mostly related to self discipline and mental calmness.

Sutaka denotes the time period (10 days to 30 days) taken by a person for getting purified after death of a relative. For such a time period the person as well as his whole family should remain isolated from other persons. Probably it is a method to prevent the spread

of communicable disease which may have caused the death.²⁸ Similarly, there is provision of *sutakakala* (10 days for female child or 20 for male child) days to avoid contact with the persons of the society just after delivery of a child by the mother which probably helps the new born as well as mother protected from getting infected.²⁸ During defecation, one should cover nose, mouth and head with some cloth.²⁹ One should not wear a cloth already wore by someone else.³⁰

Bathing is advised after vomiting or shaving or going to the place of cremation.³¹ One should take food after washing hands; foot and mouth with water.³² All of these are different ancient measures for preventing the infections.

Measures to prevent communicable diseases include improved vaccination services, hygienic conditions, sanitation, safe water, health promotion activities, surveillance, notification and health education.³

World health organization also advices for maintaining basic measures of hygiene like frequently washing hands with soap and water to prevent from communicable diseases such as COVID19.³³

Discussion

Emerging and re emerging infectious diseases are threat to human being. Black Death (Plague pandemic of 1347-1350) was one of the greatest catastrophes in human history and one estimate suggests that it killed almost one-third of Europe's population. The pandemic of 'Spanish flue' in 1918-19 killed over 20,000,000 people globally. Although attempts had been made to eradicate several diseases but till the date only smallpox could have been eradicated.³ Eradication of diseases requires efforts at national and international levels besides a large financial and medical support. There are indefinite numbers of infectious agents and most of the time a new virulent organism comes to affect human population, SARS and COVID-19 viruses are recent examples. It takes a considerable time and resources to develop a vaccine against any organism and

control of emergence of new infective agents or re-emergence of previous agents is unpredictable. Therefore, decreasing host susceptibility and preventing environmental transmission is essential. *Rasayana* potentiates *oja* (essence of *dhatu*s i.e. structural elements) in other words boosts the immune system, for example, researches have proved that intake of *amalki*, *pippali*, *haritaki*, *shilajatu* increases gamma globulin leading to increase in nonspecific resistance³⁴. *Ayurveda* emphasizes this aspect of controlling the infectious diseases. These measures are being practiced in Indian society and religion since time immemorial. For example *snana* (bathing), *achaman* (washing mouth with water) and *padaprakshalana* (cleaning feet with water) are components of *dianacharya*¹⁸ and are also practiced in the process of worship. Practices of *sutaka* and allowing only bathed and clean people to the temple (extreme and blind practice of which lead to untouchability practices in the society) appear to be the part of prevention of infectious diseases. Similarly, the custom of burning human body after death is a way of preventing the human being from deadly infectious agents, especially when death is due to some communicable disease. Modes of transmission of diseases described by *Sushruta* are relevant even in current scenario and avoiding these modes helps to interrupt transmission of communicable diseases.¹⁴ In traditional practice intake of leaves of *tulsi* (*Ocimum sanctum*) and *marich* (*Piper nigrum*) in *Ashwin* month (September – October) have been helpful in preventing malaria.³⁵ *Sutaka* practiced as part of Indian culture is nothing but a way of quarantine or isolating the susceptible person from the rest of the people. *Namaskara* as a way of salutation is also helpful in preventing diseases by breaking the channel of transmission.

Among eight branches of *Ashtang Ayurveda*, 3 branches i.e. *Bhoot Vidya*, *Rasayana Vigyan* and *Vajikaran Vigyan* are very relevant in management of epidemic diseases. They cover both psychological and physical health of a person. In *Bhoot Vidya*, the treatment part includes: (1) mantras, (2) gems and (3) medicines. First 2 parts are psychological healing and 3rd deals with somatic

treatment. In *Ayurveda*, both preventive step to stop the spread of disease and curative step to strengthen the body to fight with organism and also to manage the complications have been covered. In *Ayurveda* there are 2 concepts to prevent the infection. One focusing upon pathogen (*beeja*) relates to vaccine development and other focusing upon host (*kshetra*) relates to modulation of innate immunity. Traditional *Ayurveda* texts support the later by all measures, described above. Infective agents are able to cause a disease only if they are able to evade the immune system which can be made strong by using *rasayana* and *swasthavritta*.³⁶

It is observed in recent COVID-19 pandemic that about 80% of cases have mild symptoms requiring only primary medical care, 15% require urgent medical care and remaining 5% require critical care.³⁷ Evidences suggest the positive role of traditional Chinese medicine in the management of COVID-19, therefore it is desirable to explore the benefits of *Ayurveda* in preventing and managing the communicable diseases in India.^{38,39}

Vaccination and antibiotics may be a temporary arrangement to prevent or control an infective disease. Nature has indefinite number of viruses and other infective agents and in current era it is possible to invent their newer and highly virulent forms as biological weapons. The complete answer to prevention of the infective diseases lies in the holistic approach and non pharmacological and natural methods like social distancing, cleanliness, universal hygienic practices which should be made the part of life to be practiced religiously, the way Indian culture adopted in terms of *sutaka*, *sadvritta* and *achararasayana*. These practices had been ignored in present era in view of scientific developments despite their highly scientific basis. *Rasayana* like *pippalirasayana* can be used as a measure of preventing infective diseases by strengthening the natural defense mechanism. The scattered knowledge in *Ayurveda* and ancient Indian religious literature requires scientific scrutiny to promote their scientifically valid practice. For example, research can be done on the practice of *Sutaka* by making two groups –

one practicing *Sutaka* after death of a person from some highly communicable disease like COVID-19 and other group which do not practice the custom. The data obtained from both groups can be compared, analyzed and the facts can be revalidated.

Conclusion

Current medical science, has been able to control the infectious diseases to a large extent, but with the emergence of new communicable diseases like SARS and COVID-19, the scientific fraternity had to rethink the methods of preventing and controlling them. There are innumerable numbers of infective organisms and developing immunizing agents to control or eradicate them, would be a big challenge to achieve. Therefore an alternative or complementary approach is desirable. The holistic approach of *Ayurveda* primarily focuses on the ways and means that balance the endogenous and exogenous factors responsible for the disease pathogenesis. Though all these practices are not yet validated in scientific terms, since these had already been in the practice by common people, these must be promoted. In *Ayurveda*, it is not only the medicine but also the non-pharmacological means that play important role both on psyche and soma.

Ayurvedic preventive measures and various practices prevalent in Indian culture like *sutaka* and *upavasa* may be helpful to prevent the epidemics to take the form of pandemic. This justifies the holistic approach of *Ayurveda* for promotion of the health which is a key factor for prevention of infectious diseases, although it also emphasizes on breaking the chain of transmission of infective agents.

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