



Concept of Dhoopan Chikitsa (Medicinal Fumigation Therapy) and Its Importance in Prevention of air-borne diseases–A review

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ABSTRACT



A person could spread infectious diseases to another person or an animal to person. Most of the contagious diseases are airborne, air borne diseases spread by tiny pathogens in the air. Bacteria, fungi or viruses transmit them. These diseases are spread by sneezing, coughing and phlegm. Air-borne diseases are the most widespread, and complete prevention is complicated. These pandemic conditions had occurred in ancient times, which were described in Ayurveda text such as Janpadodhwansaj vikar (mass destruction of population) and infectious diseases (Auopsargika rogas) and Samarikavishaprayoga. Janpadodhwansaj vikar, communicable diseases (Auopsargika rogas) and Samarikavishaprayoga spread by four routes – air, water, region, time. At that time, Dhoopan Chikitsa (Fumigation therapy) had been mentioned for treating these types of airborne diseases spread by air. Dhoopana is one of the measures suggested for the maintenance of the internal and external environment of man. Dhoopana is a method by which drugs of herbal, herbo-mineral or animal origin are used for fumigation. Herbs belonging to Plant origin possess kushthahara krimihara and kandughna properties, Animal products like horn, hair, nails etc. have also been used for fumigation and Mineral like sulphur compound viz, Hartal (Arsenic trisulphide) and Manashila (Arsenic disulphide) have been used as a disinfectant for Dhoopa Chikitsa or medicinal fumigation therapy. The nose is the best route for the administration of drugs to the patient. Dhoopan Chikitsa is very easy to administer, and it can fumigate the environment also.

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INTRODUCTION

Airborne diseases refer to a group of diseases caused by organisms that are transmitted by air infection. The spread happens via tiny pathogens. Pathogens refer to an infectious agent like bacteria, fungus, parasites or virus. These are transmitted through breath, particularly by sneezing or coughing and also through phlegm. Most of the infectious diseases are air borne diseases. A person could spread communicable diseases to person or animal to person (Kalamkar *et al.*, 2015).

Standard airborne diseases

H1N1 influenza, Ebola virus, Tuberculosis, Measles, Mumps, and Pulmonary plague, SARS – CoV, Diph-

theria, Pertussis.

Route of Transmission

In Airborne diseases, transmission occurs by droplet nuclei and small particle in the respirable size range containing infectious agents.

In Airborne diseases, there are mainly two routes of infection depending upon the particle size.

Airborne infection

usually, the infection occurs by the respiratory route. Air born transmission is different from droplet transmission. It refers to the presence of microbes within droplet nuclei that are commonly considered to be particle $<5\mu\text{m}$ in diameter remaining in the air for a long time and can be transmitted to others over a distance greater than 1 meter. The diseases are pulmonary tuberculosis (mycobacterium tuberculosis), measles, chickenpox (varicella-zoster virus), and pulmonary plague (Yersinia pestis).

Droplet infection

Droplet transmission occurs if there is adequate contact between the mucous membrane of mouth and nose of an infected person and large particle droplet ($> 5\mu\text{m}$) when the person is in close contact within one meter. These droplets are commonly generated by the infected person during sneezing, coughing or talking. Due to this transmission, some common diseases occur viz. Pneumonia, Pertussis (Bordetella pertussis), Diphtheria (corynebacterium diphtheria), and Severe Acute Respiratory Syndrome {SARS} (coronavirus), Influenza, Mumps and Meningitis (Aliabadi *et al.*, 2011).

Now a days, most of the countries have been suffering from COVID-19. COVID-19 is an infectious disease caused by a new virus (coronavirus). From the above description, a respiratory infection can spread through different sizes of droplets: if the droplet particles are $>5-10\mu\text{m}$ in diameter, these are referred as a respiratory droplet, and if they are $<5\mu\text{m}$ in diameter, these are to be droplet nuclei.

In COVID 19, the virus is primarily transmitted through respiratory droplet and contact routes by infected people and indirect contact with surfaces and objects used by an infected person. So anyone who comes in contact with corona virus-containing droplets that fall onto a surface could be infected by COVID 19 (WHO, 2020).

Symptoms in COVID 19

The common symptoms are Fever, dry cough, fatigue, dyspnoea, headache, haemoptysis, diarrhoea etc. (Jiang *et al.*, 2020).

Mode of Spreading

In COVID 19 peoples could get infected through close contact with a person who has symptoms from the virus includes cough and sneezing. Generally, coronavirus has been spread via airborne zoonotic droplets (Kumar *et al.*, 2020).

Airborne Diseases in Ayurveda

Ayurveda is an ancient medical science has clearly described the infectious diseases, their cause, and mode of transmission, treatment and prevention in their text as Janpadodhwansaj vikar and Auopasargika rogas.

In CharakaSamhita Viman Sthana

Acharya Charaka has explained the term Janpadodhwans means the destruction of population or mass destruction in living areas. These mass destruction (Janpadodhwans) occurs due to vitiation of Air (Yayu), Water (Jala), Region (Desha), and Time (Kala). These four conditions are nothing but the modes by which infectious diseases spread. Vitiating of air produces many airborne diseases (Samal, 2016).

In Sushruta Samhita

Auopasargika rogas (communicable diseases) and Samarik Vishaprayoga could be mentioned in Sushruta Samhita. Samarik Vishaprayoga means the king and his military travel far and wide in pursuit of conquests of various kingdoms and they face the threat of being poisoned. At the time of war, the king and his military should be careful as the enemies may vitiate the paths, water, food, smoke and air also so that these type of diseases could be spread. He also described the signs of vitiation of land, water and air and their methods of purifying (Apexa, 2020).

To reduce the vitiation of air or airborne diseases from the atmosphere, Dhoopan chikitsa should be mentioned in Ayurvedic text by Acharyas.

Importance of Dhoopan Chikitsa

Dhoopan Chikitsa means Medicinal fumigation. It is one of the vital treatment told by Ayurveda. Many Dhoopan yogas are mentioned in the different textbooks of Ayurveda. Dhoopan Chikitsa (fumigation treatment) utilizes only natural ingredient so that it is safe for the human being and environment.

In medicinal fumigation or Dhoopan chikitsa, a mixture of medicinal substances which are burnt in a specific way to make a smoke called Dhoopa. There are three types of Dhoopas explained in Kashyap Samhita viz. Dhoopa, Anudhoopa, Pravidhoopa (Zope *et al.*, 2017).

Sources of Dhoopan (fumigation) Substances

1. Sthavara / Plant origin: Haridra, Neem, Vidanga, Tagar, Tamalpatra, Laksha, Sarshapa, Bhallataka, Vacha, etc
2. Jangama / Animal origin: Horn, Hair, nails, excreta etc.
3. Khanija / Minerals : Hartal, Manashil

Preparation method

All the Dhoopan materials should be collected during Pushya or maitra nakshatra from Agneya (south-east) or Uttara (north) direction (the drug growth in these directions). Then dry and pound cautiously into a coarse powder. Fill up in a new earthen pot and place in a protected place. It should be used in the time of need (Kamblen, 2018). At the time of fumigation, fumigated materials are put on the fire to produce smoke or best way to burn the Dhoopa is to ignite cow dung cake by releasing smoke steadily and gradually.

On the other hand, it is also possible to use hot charcoal, ignited coconut shell or electric Dhoopan pot also. The different formulation of Dhoop kalpas (fumigated formulation) are burnt, these ingredients give a beautiful aroma and spread in the air, with all properties like antiseptic, antibacterial, antifungal, antimicrobial, antipyretic etc. So that entire atmosphere being fumigated and purified air are being there. (Ahlawat *et al.*, 2019).

Discussion

There are millions of micro-organisms around us. For the reduction of these microbial loads, the traditional fumigation technique like Dhoopan, Homa, and Havana is explained in Ayurveda in ancient times.

In Kashyap Samhita, one entire chapter has been dedicated to this subject that is "Dhoop Kalpa". These Dhoop kalpas are widely used in Ayurvedic Pharmaceutic Preparation and many Ayurvedic treatments for various reasons (Ahire *et al.*, 2019).

1. For sterilization – sterilizing the pots in which medicines have to be stored.
2. For purification and sanitization or fumigation of premises.
3. For disinfecting the Kumaragara.
4. For repelling the insects and poisonous animals.
5. For treating infectious, contagious disease and so on.

Herbs belonging to Plant origin possess kushthahara, krimihara and kandughna properties which are mostly used as antimicrobial, antifungal and

antibacterial properties in modern researches. It shows an inhibitory effect on microbial growth or potential of cell wall breakdown (Sumitha and Prasad, 2015). Animal products like horn, hair, nails etc. have been used for fumigation where Keratin is a structural component which contains Sulphur that has been playing a vital role in the disinfection. Dried excreta of animals have been used as a source of fuel because it contains combustible gases. Mineral having sulphur compound like Hartal (Arsenic trisulphide) and Manashila (Arsenic disulphide) have been used as a disinfectant (Shrestha *et al.*, 2017).

The smoke produced by these fumigated ingredients at high temperatures is considered to be a simple way of administering a drug which can exhibit rapid pharmacological activity when inhaled. By inhalation, this fumigated combination first reach the brain, followed by lungs and then other components of the body. The medicinal herb and ghee are vaporized in Dhoopan Chikitsa (fumigation therapy) and enter the human body in gaseous form through the nose, mouth and pores of the skin. It removes the congestion of the lungs and reduces the dyspnoea (Ramchandra and Babar, 2017). So, Dhoopan (medicinal fumigation) is one of the treatments mentioned for the maintenance of the internal and external environment of human.

So, to reduce and nullify the infection spread by these airborne diseases, Dhoopan Chikitsa (fumigation therapy) is being very useful. Dhoopan chikitsa (fumigation therapy) has a capability of purification and sanitization, and it is effortless to administer.

CONCLUSIONS

Dhoopan chikitsa is exiting since ancient time. It is not only used for disinfecting or purifying the atmosphere but also is used for treating the various infectious and contagious diseases. Dhoopan is said to be extremely effective not only for preventing but also in curative aspect.

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Conflict of interest

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