



Unveiling Janapadodhwansa: Exploring The Intersections Of Zoonotic Diseases And COVID-19"

Author - Vd. Snehal Avinash Deotale¹.

¹P.G. Scholar, Dept. Of Roganidana Evum Vikriti Vigyan, Tilak Ayurved Mahavidyalaya, Pune, Maharashtra.

Co-Author - Dr. Vidya Naik²

²Associate Professor, Dept. Of Roganidana Evum Vikriti Vigyan, Tilak Ayurved Mahavidyalaya, Pune, Maharashtra.

Abstract

Since several years, India being exposed to many Epidemics. Zoonotic diseases are the infection transmitted from animal to human. These diseases can be transmitted by direct or indirect way. Direct transfer of disease is due to the close contact with animal and indirect transfer is by water, air, soil and vehicle used for transport of animals. The cause of the disease may be a virus, bacteria, fungi or other agents. Anthrax, Rabies, Bovine tuberculosis, Japanese encephalitis, Rickettsia, Brucellosis, Plague, Swine-flu and the latest epidemic -Covid-19 etc are some deadly diseases. Zoonosis affects the livestock by killing lot of population throughout the world, hence leading to destroy the economy of the country. Ayurveda being in the fore front of eradicating the root cause of the disease, has recorded its valuable experience in epidemics and termed them as Janapadodhwansa. This article has discussed about the aetiology of zoonotic disease, their impact on human health, Janapadodhwansa and their control measures. We also highlighted Covid-19, a newly emerged zoonotic disease of bat origin, that has devastating effect on human health all over the world.

Key-words : Zoonotic diseases, Janapadodhwansa, Covid-19.

Introduction

According to World Health Organisation (WHO), any disease or Infection that is naturally transmissible from vertebrate animals to humans or vice versa is known as zoonosis. The term "Zoonosis" is derived from Greek word "Zoon" which means animal, and "noses" which means illness.

Human, animals and environment plays a significant role in the emergence and transmission of different infectious diseases. Among the human pathogens, about 60% are zoonotic in nature.

Zoonotic pathogens may be bacterial, viral, or parasitic or may involve unconventional agents and may spread to humans through direct contact with animals or indirectly through food, water and environment. They represent a major public health problem in the world due to our close contact with animals in

agriculture, as companions and in the natural environment. Zoonoses can also cause disruptions in the production and trade of animal products, food and other uses.

Based on the prevailing direction of transmission of the disease between humans and animals, zoonosis includes- Anthroozoonosis i.e., animal to human and Zooanthroponosis i.e., humans to animals.

Both gram-negative and gram-positive bacteria & both DNA and RNA viruses are capable of inducing Zoonoses. Mainly the RNA viruses are more frequently linked with Zoonoses. However, any animal that has the potential to transmit pathogens to human can be considered as vector.

Aim and objectives

The aim of this article is to understand the concept of Zoonotic diseases and Janapadodhwans with respect to Covid-19, the pathogens of Zoonosis, ways of transmission and eradication of the disease as per Ayurveda.

Materials

The data is primarily collected from various ayurvedic Samhita's like Charak, Sushruta, Vagbhat etc., Modern Medical textbooks and National, International journals are also referred.

Methodology

Janapadodhwansa

In Ayurveda, Acharya Charaka explains the pandemic condition under the concept of Janapadodhwansa. According to ayurveda, the term Janapadodhwans where 'Janapad' means group of people and 'udhwans' means demolition has been used to describe epidemics/pandemics. Janapadodhwansa is considered as consequences of 'Pragyaparadh' i.e., derangement of intellect (Buddhi), restraint (Dhriti) and memory (Smriti) leading to improper actions (ashubh karma) and 'Adharma' i.e., not following the righteousness.

Acharya Charaka states, people having distinct Prakruti (constitution), Ahara (diet), Deha (body), Bala (strength), Mana (mind), Vaya (age) etc. if got affected by some doshas, it causes one particular disease having same characteristics; hence leading to Janapadodhwans. The four factors namely Vayu (air), Jala (water), Desha (land), and Kaala (time/season) are primarily altered. The sequence of these four factors, being affected in progressive order is very important. Among these, Kaala being the most powerful cause of disaster.

Acharyas in their classics, has used different terminologies for Janapadodhwans. Acharya Sushrut has termed this condition as Maraka. Acharya Kashyap talks about the disease which occurs in Janpad vishesha. Acharya Bhela used the term Janamaar.

Aupsargik Rogas

Acharya Sushrut has explained Aupsargik rogas (contagious disease). These are communicable diseases that spread through direct contact or indirect contact like contaminated objects of patient. By physical contact, inhaled air, dining together in same plate, sharing bed, clothes and cosmetics spread the communicable disease from one person to another. Kushta, jwara, Shosh, Netrabhishyanda are classical examples of communicable diseases given by Sushruta.

India was lately witnessing an outbreak of the highly contagious eye infection- Viral conjunctivitis/Pink eye. On one hand the subsequent floods that have caused sanitation issues, and on other hand combination of increased humidity and warmer temperature during the rainy season; this year has produced ideal

circumstances for the rapid reproduction of bacteria and viruses. Hereby giving rise to viral conjunctivitis i.e., inflammation of conjunctiva- the transparent layer covering the white part of the eye and inner part of eyelid which is mainly caused by Adinovirus. Conjunctivitis is typically self-resolving and rarely causes any permanent damage to the eye.

Corona virus

In December 2019, a severe outbreak of COVID-19 occurred in Wuhan city, China. It was caused by acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection; attacking mainly the immune system of the body. On January 30 2020, the WHO declared an outbreak as a Public Health Emergency of International Concern. The current therapy of Covid-19 involves only symptomatic and supportive treatment and no specific drug or targeted intervention is available. Co-Vs are the large family of viruses. Animals getting infected with these viruses spread the infection to living beings. In humans several Co-V can cause respiratory infection. This originates naturally from sneezing, talking, breathing etc.

Novel corona virus is constrained disease so, preventive measures is the only available option. Structurally, it is positive strand RNA virus emerged from bat virus having genetic similarity to bat Co-V. SARS-CoV-2 has four structural proteins- Spike(S), Envelop(E), Membrane(M) and Nucleocapsid(N) in which the first three are viral and (N) is RNA genome.

Corona-virus are enveloped, positive-sense single-stranded RNA viruses of the family coronaviridae. Previously six corona viruses (Co-Vs) were known to cause human infections. Recently, a newly emerged Co-VS initially known as 2019-novel coronavirus and later designated as SARS-CoV-2 causing the pandemic known as COVID-19. All seven reported coronaviruses are zoonotic in nature. Bat is the natural host for most coronaviruses. A possible route of transmission to humans is through an intermediate host that humans have contact with. As the viruses are mainly transmitted through respiratory droplets and fomites, human to human transmission is relatively easy. Contact transmission is an important factor in tracking the spread of these viruses. Among the seven viruses, SARS-Co-V, MERS-Co-V, and SARS-CoV-2 were most severe. MERS-Co-V had the highest fatality rate.

COVID-19 is a global public health challenge and is causing devastating effects on health, social life and economy all over the world. The disease has been reported in more than 200 countries causing 25 million cases and 0.9 million deaths worldwide and was considered as global pandemic.

COVID-19 disease caused by SARS-CoV-2 virus has an incubation period of 1-14 days with symptoms as fever, dry cough, headache, dyspnoea, myalgia, respiratory distress, renal impairment, diarrhoea, loss of smell and taste, multiple organ failure.

Causes of Janapadodhwans

The vitiation of Vayu, Jala, Desh, and Kaala causes Janapadodhwansa. This is comparable to the environmental pollution such as air pollution, water contamination etc. This environmental pollution plays an undeniable role in the development of illness. The sources of pollution such as industrial emission, poor sanitation, biomass fuel, inadequate waste management etc. harm huge number of people in developing countries.

Characteristics of Dushit Vayu, Jala, Desha, and Kaala.

Vayu (Air) - Vishama(absence of features in accordance with season), Ati-stimita(excessive calm), Ati-chalam(excessive violent), Ati-parusha(excessive rough), Ati-shita(extreme cold), Ati-ushna(extreme hot), Ati-ruksha(excessive dry), Ati-abhishyandi(excessive humid), Ati-bhairavaravam(wind blowing with excessive sound), Ati-pratihataraspargati(colliding in nature), Ati-kundalinam(excessively cyclonic), Asatmya-gandha,bashpa,sikta,panshu, dhumophatamiti (wind with unwholesome smell, mixed with gases, sand, ashes and smoke.

Jala (Water) - Vikrut-gandha, varna, rasa, sparsha (Abnormal smell, colour, taste and touch), Kleda-bahula (excessive stickiness), Jalchara-vihangam (water bodies are devoid of aquatic animals like fishes), Upakshinam-jalashay (reduced water levels in lakes and ponds), Apritikaram (unpleasant appearance or taste), Upgatagunam (devoid of natural qualities).

Desha (Land) - Vikrut-gandha, varna, rasa, sparsha (Abnormal smell, colour, taste and touch), Kleda-bahula (excessive stickiness), abundance of serpents, wild animals, mosquitos, locusts, flies, rats; Pratanaadibahulam (excessive orchard with grass, weeds and creepers), Ati-shushkanastashayam (extremely dried land with destroyed crops), Dhumrapawanam (abundance of smoke in air), Suffering of different animals and birds due to bewilderment and agony, Kshubhitudirnashalilashayam (disturbed and turbulent water bodies), Pratataulkapatanighatabhumikampa (Frequent occurrence of meteorites, thunderbolts, and earthquakes), Atibhayavaramroopam (hearing of fearful sounds); Sun, moon and stars appear as they are covered with coppery, reddish-brown, and whitish colored clouds; People living on the land appear as confused, bewildered, agitated, sorrowful, frightened, etc.

Kala- Features opposite, excessive or less to the features of normal course of season.

Discussion

Ayurvedic concept

Even though Vayu, Jala, Desh, Kaala all of these four factors get vitiated by Doshas, people will not suffer from illness if they are assured with proper quality of medication.

According to Ayurveda, the three main principles to tackle pandemic conditions are Rasayana chikitsa (immune-modulators therapy), Panchakarma (five purification procedures) and Sadvritta (good conduct).

Acharya Sushrut has emphasized the use of Aushadas (herbs) and Jala (water) which are not affected by altered weather conditions (i.e., Avyapanna/Avikrut ritu) or collected before the onset of Maraka. Here, he has explained the importance of prophylaxis treatment that is given before the onset of any epidemic, in order to suppress the cause.

Along with this, life-saving management like Satyapalan (truthfulness), Bhootdaya (universal compassion), Daana (charity), Bali (sacrifice), Devatarchana (prayers), Sadavrittanuvritti (good deeds always), protection of self, living in a safe place are very effective. Shivanamupsevan (devotion towards God), Sevanam Brahmacharyasya tathaiv brahmacharinam (service to those observing celibacy and following it), Samkatha Dharmashashtranam (discussion on religious scriptures), Samkatha Maharshinam (listening to great sages), Dharmik (religious), Satvik (moral values) and learned people. These therapies when adopted during Janapadodhwans can easily save the life of individuals provided that the death of the individual is not pre-determined.

Modern concept

Zoonoses involves the interaction of humans, animals and environment and therefore a multi-sectorial approach is needed to ensure effective control measures. Surveillance is crucial to prevent and control zoonotic diseases. It can be used to detect early infection, affected humans and animals, reservoirs, vectors and endemic areas including the hotspots. It involves the controlling strategies against emerging and re-emerging diseases to improve human health, to manage disease and minimize morbidity and mortality of humans and animals. Since zoonoses spreads globally, co-ordinated surveillance approaches at local, regional, national and international levels are essential to control the disease. The surveillance includes- Pathogens surveillance (to detect and identify pathogens), serological surveillance (to detect the presence of pathogens in blood), syndrome surveillance (to determine the propensity of disease through data

analysis based on symptoms), risk surveillance(to detect the risk factors responsible for transmission of disease).

Providing treatment to affected individuals and vaccination of healthy individuals.

Decontamination of infected materials to reduce the chances of new infections.

Public awareness regarding laws and regulations of isolation and quarantine. All the disease control measures require a substantial amount of financial support. The developed countries and donor agencies like WHO, FAO etc need to support the developing countries in such crisis. All these measures can prevent and control Janpadodhwansa i.e., Epidemic.

Conclusion

Zoonotic disease represents a serious public health concern. Ayurveda advocates a healthy lifestyle centred on an individual's particular mind-body type, as well as strategies to self-referral. If we study the recent outbreak of zoonotic diseases, we understand the importance of basic principles of life which are elaborated in Ayurveda. Sadvritta, Ritucharya, Dincharya, Achar rasayan, Astang yog etc, all of them builds up a high quality immune power which protects a person from various infections.

References

1. Samhita C. Pt. KashinathShastri and Dr. Gorakhnatha Chaturvedi, VimanaSthana Chaukhambha Bharti Academy; 2015.
2. Samhita C. Pt. Kashinath Shastri and Dr. Gorakhnatha Chaturvedi, Sutra Sthana, Chaukhambha Bharti Academy; 2015.
3. Samhita S. KavirajaAmbika Dutta Shastri, Sutra sthana, Chaukhambha Sanskrit Sansthana: 2014.
4. Samhita B. Shri AbhayKatyayana, Sutrasthana Chaukhambha Surbharti Publication: 2017.
5. Samhita K. Nepalrajguru Pandit Hemrajsharmaevan Shri Satyapalbhishagacharya, KhilaSthana Chaukhambha Sanskrit Sansthana; 1998.
6. Asmita P. The concept of pragyapradh with respect to the factors that cause life- style disorders. Int Ayurvedic Med J 2019;7:111-4.
7. Singhal T. A Review of Coronavirus Disease-2019 (COVID-19). Indian J Pediatr. 2020 Apr;87(4):281-286. Epub 2020 Mar 13.
8. Rahman MT, Sobur MA, Islam MS, Levy S, Hossain MJ, El Zowalaty ME, Rahman AT, Ashour HM. Zoonotic Diseases: Etiology, Impact, and Control. Microorganisms. 2020 Sep 12.
9. Van Seventer JM, Hochberg NS. Principles of Infectious Diseases: Transmission, Diagnosis, Prevention, and Control. International Encyclopedia of Public Health. 2017: 22-39, Epub 2016 Oct 24.