



**VYADHIKSHAMATVA (IMMUNITY) – CONCEPT OF AYURVEDA WHICH IS A BOON  
DURING COVID-19 PANDEMIC- A REVIEW ARTICLE**

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**ABSTRACT**

Covid-19 caused by Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV- 2), is an unprecedented pandemic which has impacted the entire world and continues to do so. Despite the best of efforts even by the best health care providing countries of the world, the disease has spread globally and doesn't seem to stop unless we come up with evidence based and clinically proved prophylactic measures. Ever since this pandemic emerged, there has been a constant conflict whether ayurveda can prove to play a vital role in current crisis. Well, trials are going on for evidence based study which is conducted in large institutions in collaboration with the MoHFW. The most worked upon concept of ayurveda in present crisis of Covid 19 is *vyadhikshamatva* (immunity/resistance against diseases). Varying response of individuals towards corona virus makes the concept of immune response all the more significant. Ayurveda has defined *vyadhikshamatva* and factors aiding to it in detail that will be discussed in present study.

**INTRODUCTION**

Today, we are dealing with unprecedented pandemic caused by novel corona virus disease (COVID-19) which sources itself in Wuhan city of China. From there, it has spread to the entire world in no time and continues to impact various countries globally. It has not only weakened healthcare systems but also brought world economy to a halt.

It calls for an urgent need of integrative healthcare approach towards welfare of society. China, the first hotspot of Covid 19, to a large extent brought the epidemic under check as a result of use of Traditional Chinese medicine (TMC) alongwith contemporary approach. The traditional system of Indian Medicine should see this as an opportunity to establish itself as much acknowledged healthcare stream as it used to be in ancient India.

*Vyadhikshamatva* is an ancient concept of Ayurveda which holds similitude with individual's immune response towards a disease. It can be related to several terms like *oja*, *bala*, *kapha*, *balavidhikara bhavas* in ayurveda. Covid 19 has close proximity to a concept mentioned in ayurveda i.e. *Janapadodhvamsa*, which impacts large population at the same time. *Rasayan* therapy and panchkaarma procedures are the key approaches to overcome *Janapadodhvamsa* as mentioned in ayurveda.<sup>[1]</sup> *Rasayan* therapy is nothing but immunomodulating therapy that increases our strength to fight against a disease. In short, *Rasayan* therapy improves our *vyadhikshamatva bala* (immune response).

Witnessing the plight of even the best healthcare providing countries in the world in front of Covid 19 pandemic, it is high time we understand the significance of preventive measures over curative measures. Immunity is the key factor in preventive medicine. Therefore, it is the need of the hour to bring the concept of *vyadhikshamatva* in forefront. Immunity is no more a choice. It is a necessity.

Healthcare community should not shy away from having a pluralistic approach towards current crisis. It won't harm anyone to connect knowledge of all global traditional medicine alongwith contemporary approach although with utter caution. This pandemic should also be seen as an opportunity to scuttle evidence based research projects based on traditional medicine.

**DISCUSSION**

**World's worst pandemic**

A Pandemic, as bad as Covid-19, is not new to the human race. Some of the most brutal killers in human history are Cholera, bubonic plague, smallpox, and influenza killing millions of people over a course of time. Some of the world's worst viral pandemic were 1918 Pandemic (H1N1 virus), 1957-1958 Pandemic (H2N2 virus), 1968 Pandemic (H3N2 virus), 2009 H1N1 Pandemic (H1N1pdm09 virus).

**Pandemic as mentioned in ayurveda**

Pandemic can be defined as an outbreak that usually affects a large proportion of the population in a wide

geographical area which even crosses over a continent to be spread to another continent. The present contemporary concept of the pandemic/epidemic are more or less similar to the concepts described in Ayurveda regarding *Janapadodhvamsa*. COVID-19 pandemic resembles *Janapadodhvamsa* in having similar aetiology, modes of transmission, principles of prevention of outbreak like social distancing etc.

In Ayurveda, Acharya Charak defines pandemic under a broad category of *Janapadodhvamsa*. The word *Janapadodhvamsa* comprises of two words *Janapada* meaning a community or a large population and *dhvamsa* meaning destruction or damage. Basically, *Janapadodhvamsa* means any disease which affects or causes damage to a large number of individuals. Covid 19 has affected millions of people worldwide and the number of people succumbing to this pandemic is still counting. Acharya Charak states that there are mainly two modes of disease occurrence- *saadharan* i.e. common aetiology for a large group of population and *asaadharan* i.e. different aetiology of disease as a result of different diet and lifestyle in different individuals.

The *saadharan* factors can be regarded as generalised factors further described under four factors that gets contaminated in *Janapadodhvamsa*. These are *vayu* (air), *jala* (water), *desha* (habitat) and *kala* (time). The primary aetiology of *Janapadodhvamsa* as described in ayurveda is *paap karma* or *adharm* (immoral acts). The descending order of disease severity arising due to four factors is *vayu < jala < desha < kala*. It means diseases arising due to vitiation of *vayu* (air) is least severe. It is followed by disease severity arising due to that of vitiation of *jala* (water), *desha* (place) of, *kala* (particular time period).<sup>[2]</sup> Diseases arising due to vitiation of *kala* is most severe as an individual can change air, water and habitat but can never alter time. *Kala* is *nitya* (eternal) and can never be destroyed. The aetiology of *Janapadodhvamsa* can also be identified under *daivabalapravritta* subtype of *vyadhi* (disease). It includes diseases which are not understood by individual intelligence. It includes *sansargaja* (contagious) and *upsargaja* (Infectious) diseases. These include certain conditions which can be transferred directly from an infected person to a healthy person. Certain diseases get transmitted to a healthy person from close contact with an infected person which is basically the source of Covid 19 disease.

We have witnessed that there is a tremendous variation in individual's response towards this viral disease. The asymptomatic, mild, moderate, severe and critical cases of various diseases with varying clinical presentations have been diagnosed on the basis of *nidana*, *doṣha*, *duṣhya*, *nidanapanchaka* and *ṣaṭkriyakala*. Likewise, aetiopathogenesis and treatment protocol of Covid 19 has been described in detail in contemporary science and is still being explored as the disease progresses. If concept of *nidanapanchak* (diagnosis protocol) is used efficient-

ly, it is useful in diagnosis, prognosis and treatment of disease.

One concept which is constant in both traditional and contemporary approaches is the concept of immunity. We are concerned about the immunity so that our body can better fight the disease with no or minimal symptoms whatever the aetiology, pathogenesis and treatment protocol of disease maybe. To accomplish that, we need to have knowledge of *vyadhikshamatva*. Therefore, *vyadhikshamatva* has a role before *nidanapanchak* come into play.

#### Vyadhikshamatva

The term 'Vyadhikshamatva' is derived from a combination of two words- *vyadhi* i.e. disease or harm and *kshamatva* i.e. to overcome or to suppress or resist.

Therefore *Vyadhikshamatva* can be defined as the factor which restricts the pathogenesis of disease and opposes the potency of disease. It is the strength of the body to protect against diseases. Acharya Chakrapani defined the terms *vyadhibalavirodhatvam* and *vyadhi utpadprati-bandhkatvam* as competence of the body to fight against the already manifested diseases and competence of the body to prevent the occurrence of disease or pathogenesis in the first place respectively.

#### Varying immune response of individuals towards Covid 19

Every individual has different response towards coronavirus disease. Some people infected with the virus show no or minimal symptoms, some show mild-moderate symptoms while others show severe symptoms. There are various factors that determine the individual's response towards covid 19 like *nidana*, *doṣha*, *duṣhya* etc. One of the most important factor is individual's immunity.

As per Ch.Su. 25/5 "Na cha sarvani sharirani vyadhikshamatve samarthani bhavanti,"

all individuals don't have similar level of immunity. There are some individuals who are lean or thin but have fine resilience and there are some who appear healthy but don't have active energy. Thus endurance depends upon the status of *bala* i.e. on terms of activity.<sup>[3]</sup> This is because of *bala* of every individual varies as well. *Bala* is categorised into three types:<sup>[4]</sup>

1. *Sahaja bala*
2. *Kaalaj bala*
3. *Yuktikrita bala*

*Sahaja bala* (heredity) also known as the *prakrit bala* is the natural physical and psychological strength of body. Individual is born with *sahaja bala*. Constitutional strength comes from birth and increases with growth and development of the body without the help of extraneous factors for growth. It is evident that some persons are strong by nature while others are weak.

*Kaalaj bala* (pertaining to time of life and season) is the strength that is acquired over a period of time. This *bala* depends on two factors- *ritu* (season) and *vaya* (age). In the beginning of *visargakala* (releasing period) i.e. rainy season and end of *adana* (receiving period) i.e. summer season, *bala* is comparatively lesser during this period. Thus *bala* is more in *sheeta ritu* i.e. *hemanta* and *shishira ritu* and least in *grishma* and *varsha ritu*. In adulthood, *bala* is more compared to childhood and old age.

*Yuktikrita bala* (acquired) is the strength that is acquired by *aahar* and *vihar* of individual. This depends upon nutrition and lifestyle of the individual. *Aaharcheshtayoga* i.e. combination of appropriate food and exercise is imperative to attain *yuktikrita bala*. Few experts accept use of *Rasayana* from word *yoga*.

All three categories vary in different individuals because of which level of immunity also varies. *Sahaja bala* has the primary role in formulating immunity of an individual. *Kaalaj* and *yuktikrita bala* play the supporting role in formulation of immunity.

#### **Vyadhikshamatva (Immunity) boosting factors mentioned in ayurveda:**

There are thirteen factors described by Acharya Charak which are responsible for promotion of strength. These are mentioned under *bala-vriddhikara bhava*<sup>[5]</sup>

1) **Balavat purusha** – individual who is a progeny of naturally strong parents i.e. having strong *matrija* and *pitrija bhavas*.

2) **Balavat desha** – individual who is born in a place where people are naturally strong i.e. people born in *sadharana desha* are naturally strong.

3) **Balavat kale** – individual who has taken birth at a specific time when people naturally gain strength i.e. *bala* is maximum at the starting of *adana kala* and at the end of *visargakala*.

4) **Sukhashcha Kalayoga**– people born in favourable time period i.e. *sadharan kala*.

5) **Beeja Kshetra guna sampat** – individual born out of excellent quality of *beeja* (healthysperm and ovum), *kshetra* (anatomically and physiologically healthy uterus).

6) **Ahara-sampat** – individual who intakes proper combination of wholesome food.

7) **Sharira-sampat** – individual having good physique and well compact body.

8) **Satmya-sampat**- individual having wholesomeness of various factors responsible for the maintenance of healthy body. Substance favourable to an individual is called *satmya* and the exercise of *satmya* substances result in the wellbeing of that individual.

9) **Sattva-sampat**– individual having good intellect and mind and healthy mental constitution.

10) **Svabhava-samsiddhi** – individual who is in favourable temperament with nature.

11) **Youvana** – individual in its youth has more strength. *Bala* in adulthood is more as compared to childhood and old age. *Madhyamaavastha* of *vaya* has *sama matra* of *bala*.

12) **Karma** – individual having good tolerance towards exercise. The strength of an individual can be inferred by *vyayama-shakti*<sup>[6]</sup>

13) **Samharsha** – individual with happy mind state have ability to tolerate any type of physical and mental difficulty. This way happiness promotes strength.

#### **Immunity w.s.r. to viral disease**

Viruses can only replicate inside cells therefore, they need the cell machinery in order to produce their own proteins. Immune mechanisms act against a) the viral particle through the viral replication cycle, or b) the infected cells, or c) both.

During the stage of viral replication, there is inhibition of synthesis of cellular proteins and only the genetic information of the virus is processed.

In most viral infections, the immune system has the opportunity of attacking viral particles in some stages of the infection i.e.

- a) before viruses enter cells
- b) before they are liberated past their replication
- c) inside infected cells during the protein production or
- d) viral assembling phase

During these stages, antigens that appear in the membrane of the infected cell can activate the immune response. Different mechanisms of natural and adaptive immunity are used against these infections.<sup>[7]</sup>

#### **Innate**

It is mediated by interferon and by the activation of NK cells. These mechanisms are mainly aimed against infected cells.

Interferon is a cytokine with three different types:  $\alpha$ ,  $\beta$  and  $\gamma$ . The first two are mainly produced by monocytes-macrophages and to a lesser extent by fibroblasts. However, interferon-  $\gamma$  is produced by CD 4 and CD 8 lymphocytes and NK cells. Interferon has a strong anti-viral action.

NK cells are naturally activated against cells infected by viruses. This cytotoxic mechanism is very effective in viral infections.

### Adaptive immunity

It acts against both viral particles and infected cells. The most important mechanisms against viral particles are antibodies; while the cytotoxic mechanisms are the most important against infected cells. This is mediated by cells (CD 8+), antibodies and cells (ADCC) or antibodies and the complement (classical pathway).

**Against Viral Particle:** The viral capsid is made of proteins and therefore, it is very antigenic. It induces the production of a large number of antibodies that can have different actions against the virus. Neutralization of the infection (IgG, IgM and IgA), prevents the virus from entering the cells, viral agglutination (IgM), reduces the number of infectious agents. Phagocytosis activation forms the antigen-antibody complex and stimulates the Fc receptor on macrophages.

**Against Infected Cells:** Cells infected by viruses can express on their membranes viral antigens long before the viral assembling takes place. Thus, their destruction is a very effective mechanism for avoiding the production of more viruses. The adaptive immune response attacks infected cells using antibodies (ADCC system, classical pathway of complement activation, phagocytosis) and cytotoxicity mechanisms mediated by CD 8+ lymphocytes. This is one of the most effective mechanisms against viral infections.

Do's and Don'ts' in Covid 19 are strictly to be followed as advised by authentic websites of government or healthcare practitioner. Preventive interventions can include both pharmacological as well as non-pharmacological strategies.

Overcrowding, poor hygiene, malnutrition, drastic climate changes, lack of efficient healthcare system and sanitation are the contributing factors for spread of an infectious disease like Covid 19 which are prevalent in a developing country like India.<sup>[8]</sup> Spread of disease can also be attributed to driving away from nature towards technology. It is also an outcome of overseas travel. In this pandemic, it is imperative to think if technology has been a blessing or a curse. Had it not been for overseas travelling, it wouldn't have spread to far flung countries from the source of its origin. But as they say, we have to suffer repercussions of advancement in technology from time to time alongwith enjoying the sweet taste of it. But surely we need to find a balance between nature and advancement in technology. We sure need to learn how to live in harmony with the nature.

### CONCLUSION

For the most part of the concepts of *Janapadodhvamsa* mentioned in Ayurveda are found relevant to current theories of pandemic of Covid 19. The techniques of managing communicable diseases advised include pharmacological and non-pharmacological interventions. The usage of *Rasayana* therapy and *Panchakarma* procedures is pharmacological aspect which is a broad topic in itself.

The use of *Rasayana* in *janapadodhvamsa* definitely brings in light, the importance of immunity to tackle with communicable disease.

Other factors mentioned in ayurveda aiding to immunity are adequate physical activity, healthy lifestyles, enough sleep, taking care of *dharniya* and *adharniya vegas* (retainable and non-retainable urges), *sadvritta* (good code of conduct), and isolation of infected persons are vital among the non-pharmacological interventions.

Ayurveda has proved its mettle in tackling long standing chronic non-communicable diseases. The need of the hour is to bring forward a potent approach towards managing communicable diseases. One of the tools for this is improving *vyadhikshamatva bala* by pharmacological and non-pharmacological methods so as to prevent or diminish symptoms of infectious diseases like Covid 19. The scope for future is to conduct evidence based scientific data so as to establish the efficacy of ayurvedic approach in such pandemic.

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