

**ROLE OF VYADHIKSHAMATVA IN PREVENTION OF RAJAYAKSHMA  
(PULMONARY TUBERCULOSIS)****\*<sup>1</sup>Dr. Himadri Arya, <sup>2</sup>Dr. Sanjay Kumar Singh and <sup>3</sup>Dr. Kavita Kaushik**<sup>1</sup>Second Year PG Scholar, Dept. of Rog Nidan Evum Vikriti Vigyan, Rishikul Campus, UAU, Haridwar.<sup>2</sup>Professor, Dept. of Rog Nidana Evum Vikriti Vijyana, Dept. of Rog Nidan Evum Vikriti Vigyan, Rishikul Campus, UAU, Haridwar.<sup>3</sup>Second Year PG Scholar, Dept. of Rog Nidan Evum Vikriti Vigyan, Rishikul Campus, UAU, Haridwar.**\*Corresponding Author: Dr. Himadri Arya**

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**ABSTRACT**

The fundamental aim of *Ayurveda* is preservation and promotion of health of a healthy person and cure of various ailments of diseased subjects. The health of an individual depends upon excellence of *dhatu*s (body tissues) and mental stamina. It is difficult to treat the disease in those who are having low body strength. Immune deficiency is an important predisposing factor for producing various types of diseases but infectious and communicable diseases are of utmost importance. The risk factors for Pulmonary tuberculosis are dense population, poor hygiene, malnutrition and after effects of chronic debilitating diseases. The specific strength of the body, which either prevent the disease as well as counteracts the disease which already exist, is called *Vyadhikshamatva*. It plays a vital role in healthy and disease states of life. Without the depletion of the natural strength of the body the disease doesn't occur Hence concept of *vyadhikshamatva* is of great importance for holistic approach towards individuals.

**KEYWORDS:** *Ayurveda, Vyadhikshamatva, Rajayakshma.***INTRODUCTION**

*Ayurveda* is science of life, aiming to the prevention and promotion of the health as well as cure of various diseases. According to *Ayurveda* health is the state of dynamic equilibrium between body, soul, senses and mind. The imbalance state of all those are known as *vyadhi*. In *Ayurveda* several numbers of diseases are described, *Rajayakshma* is one of them, which is considered as king of all diseases. The etiological factors of *rajayakshma* are *Sahasa* (over exertion), *Vegasandharana* (suppression of the natural urges), *Kshaya* (depletion of tissue elements) and *vishamashana* (irregular & improper diet) results in vitiation of *tridosha* & *saptadhatu*.<sup>[1]</sup> In modern medicine it is correlated with Pulmonary Tuberculosis. It is a chronic pulmonary and systemic disease caused by *Mycobacterium tuberculosis*, and is the leading cause of morbidity & mortality worldwide despite many preventive and curative measures. As per WHO, India is the highest TB burden country in the world having an estimated incidence of 26.9 lakh cases in 2019. The average prevalence of all forms of tuberculosis in India is estimated to be 5.05 per thousand, prevalence of smear-positive cases 2.27 per thousand and average annual incidence of smear-positive cases at 84 per 1,00,000 annually. In 2019, an estimated 10 million people fell ill with tuberculosis (TB)

worldwide; 5.6 million men, 3.2 million women and 1.2 million children.<sup>[2]</sup> The factors contributing to higher incidence of Tuberculosis are malnutrition, poverty, over-crowding, inadequate medical care and chronic debilitating illness like uncontrolled diabetes, alcoholism and immunocompromised states like AIDS.<sup>[3]</sup> HIV-infected individuals have very high incidence of Tuberculosis all over the world because HIV weakens the immune system. Infection refers to the presence of bacteria in the body, which may be symptomatic (active disease) or not (latent infection). Individual with latent TB infection have TB germs in their body, but they are not sick because the germs lie dormant (sleeping) in their body. They do not have symptoms and cannot spread the germs to others. In active TB disease, bacteria are active in their body and the individual may spread the germs to others. If immune defences are lowered, the infection may be reactivated, producing communicable and potentially life-threatening disease like Tuberculosis.

**Concept of *vyadhikshamatva* in *ayurveda***

The specific strength of the body, which either prevent the disease as well as counteracts the disease which already exist, is called *Vyadhikshamatva*. *Acharya Chakrapani Datta*, while commenting on *Charaka Samhita*, gave his view on the term *Vyadhikshamatva* and explained the term in two divisions, i.e.

*Vyadhikshmatvam nam vyadhi bala virodhitvam vyadhyutpada prathibandakatvam.*<sup>[4]</sup>

**(I) Vyadhi-balavirodhitvam:** It is the capacity to resist the strength (severity) of the diseases. i.e. Improving the strength against a specific disease, which can be achieved by *Naimittika Rasayana*. It may be correlated with *Yuktikrita bala* or acquired immunity.

**(II) Vyadhi-utpadakpratibandhakatva:** The resisting power of the body competent enough to prevent the occurrence and re-occurrence of the disease. It may be correlated with *Sahaja bala* or innate immunity.

The immune system attacks organisms and substances that invade in the body systems and cause disease. Disease occur in the body only when the strength of disease-causing factors exceeds the strength of the body. As per modern science Immunity is defined as the ability of the body to resist the entry of different types of foreign bodies like bacteria, virus, toxic substance etc. The immune system is made up of a network of cells, tissues, and organs that work together to protect the body. The mechanism of immunity falls into two broad categories i.e. Innate immunity (natural or non-specific) refers to intrinsic mechanism that are poised to react immediately, and thus constitute the first line of defence. It is mediated by cells and molecules that recognize products of microbes & dead cells and induce rapid protective host reactions. The main components of innate immunity are epithelial barriers, phagocytic cells mainly neutrophils & macrophages, dendritic cells, NK cells & several plasma proteins. Adaptive immunity (acquired or specific) consists of mechanisms that are stimulated by exposure to microbes and other foreign substance. It develops more slowly than innate immunity, but is even more powerful in combating infections.<sup>[5]</sup> The cells involved are white blood cells which seek out and destroy disease causing organisms or substances. Polymorphonuclear Neutrophils are normally the most numerous of the circulating leucocytes (40-75%) which primarily fights bacteria. Lymphocytes is the master of human immune system are B lymphocytes and T lymphocytes. B lymphocytes are the only cells in the body capable of producing antibodies, the mediators of humoral immunity. They comprise about 10-15% of lymphocytes & develop from precursor in the bone marrow. T cells in circulation comprise 75-80% of lymphocytes. Depending upon functional activity, T cells have three major subtypes; Helper T lymphocytes stimulate B lymphocyte to make antibodies and activate other leucocytes to destroy microbes; Cytotoxic (killer) T lymphocytes kill infected cells; and regulatory T lymphocytes limit immune response and prevent reactions against self-antigens.<sup>[6]</sup> In Tuberculosis, the macrophages start phagocytosing the tubercle bacilli & either kill the bacteria or die away themselves. As a part of body's immune response T and B cells are activated. Activated CD4<sup>+</sup> T cells developing the cell-mediated

delayed type hypersensitivity reaction, while B cells result in formation of antibodies.

As per *Ayurveda*, *Vyadhikshamatva* depends upon the following things.

### 1. Trividha Bala<sup>[7]</sup>

*Acharya charaka* has described three types of *balas*.

1. *Sahaja bala*:- *Sahaja bala* is one which exists in the body and mind since birth & it is attained by the parental factors like *rasa, rakta, virya, ojas*. It is increase with growth of *dhatu* and does not depend upon any other cause.

2. *Kalaja bala*:- This type of *bala* influenced by seasonal traits and the age of the person. In *Aadana Kala* the *Sharira Bala* of a person reduces and in *Visarga Kala* the *Sharira bala* of a person increases. In old age due to *dhatu kshaya* the *Sharira bala* of a person reduces.

3. *Yuktikrita bala*:- It is acquired strength of the body which is gained by appropriate nutrition, physical exercise, rest, *rasayana* and *vajikaran* therapies.

### 2. Bala Vridhikar Bhava<sup>[8]</sup>

*Acharya charaka* has described *bala vridhikar bhava* to improve strength of the body as follows.

1. *Desha* (birth place) – Birth in a country where people are naturally strong.

2. *Kula* (family)- Birth in a race of strong people.

3. *Kala* (time)- Birth at the time when people are naturally gain strength. As per *acharya charaka* at the end of the *Visarga kala* and at the beginning of *Adana kala* the strength in human beings is maximum.

4. *Sukhascha Kaalayoga*- Favorable conditions in all aspects leading to good strength.

5. *Beeja kshetra sampat* - Excellence of *beeja* (Sperm & Ovum) and *kshetra* (Uterus) qualities.

6. *Ahara sampaccha*- Excellence of nourishment. *Bala* is achieved by proper combination of the intake of wholesome food like *rakta-shali, mudga-yusha, saindhava, amalaka* etc. Other regimen to maintain proper *Bala* like proper rest, exercise and appropriate use of *rasayana-yogas*.

7. *Shareer Sampaccha*- Excellence of bodily constitution. *Acharya charaka* has mentioned those who have well compact body are strong otherwise weak.

8. *Satmyasampaccha*- Excellence of suitability Substance conducive to an individual is called "*Satmya*" and the use of such substances result in the wellbeing of that individual.

9. *Satvasampaccha*- Excellence of the mind. On the basis of *bala, satva* is of three types – *pravara, madhya* and *avara*. *Pravara-sattva-purusha* is called as *sattva-sara-purusha*. *Sattva-sarapurusha* with small body structure will be able to tolerate different type of disease states.

10. *Swabhav sampaccha*- excellence of natural endowment.

11. *Yuvan (youth)* – An individual has good strength in middle age as compared to childhood and old age.

12. *Karma* (Exercise)- According to *Acharya Charaka Bala* should be inferred by *vyayama-shakti*.

13. *Samharsha*- Being enthusiastic or not be bereaved. That is person with happy mind state have ability to tolerate any type of physical and mental difficulty and problem. This way happiness promotes strength.

### 3. Oja and Bala

*Bala* is synonymously used for normal *Kapha dosha* (the factor primarily responsible for strengthening and lubricating the body) and *Ojas* (Vital energy or body component that helps in sustaining of life). *Ojas* is the final and excellent essence of all *dhatus*. *Acharya charaka* considers that *Kapha*, in its normal states of functioning represents a potential source of strength and resistance to disease & there is also similarity between their *gunas*, that's why normal *kapha* is used as synonym for *ojas/ bala/ vyadhikshamatva*.<sup>[9]</sup> *Acharya sushruta* has used the term *bala* to signify *ojas* and stated that *bala* is the power of the body sufficient to resist disease. When *ojas* present with good quality and sufficient quantity it keeps the body in a healthy state. The vikriti of *Ojas* like *Ojovisransa*, *Ojovypat* and *Ojokshaya* develop various kind of illness in our body. *Rajayakshma* is one such dreadful disease which has *Ojokshaya* as its causative factor. In *Samhita*, various factors have been mentioned which are responsible for *ojakshaya* i.e. Excessive exercising, fasting, worrying, fear, grief, taking dry, scanty and limited meals, dry beverages, exposure to wind and sun, insomnia, excessive excretion of *kapha*, *shonita*, *shukra* & *mala*, adverse season or old age, and *Bhuta-Upaghata*.<sup>[10]</sup>

### 4. Vyadhikshama Purusha<sup>[11]</sup>

As per *Acharya charaka*, the person who having appropriate musculature, compactness of the body and healthy *Indriyas* are not overcome by the onslaught of the diseases. They can tolerate the hunger, thirst, the heat of the sun, cold weather and physical exertion. They can also digest, assimilate and metabolize food properly. If the person has a good physical & mental strength then naturally his *vyadhikshamatva* is also good and such person can resist disease very well.

### Concept of Contagious / Communicable Disease

Contagious/ 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. *Acharya sushruta* has used the term *Aupsargika roga* for the disease communicating from one person to others like *kushtha*, *jwara*, *shosha*, *netrabhisyananda* which transmitted from person to person due to *prasanga* (intimate & frequent physical relationship), *gatrasmarsparsha* (contact of limbs, as in shaking hands), *nishwasa* (breathing or air borne), *sahabhojana* (eating together from the same utensil), *sahashaiyasana* (sharing the same bed) and *vastra malyanulepana* (wearing the same apparel, garlands of flower and unguents).<sup>[12]</sup> These modes of transmission are still relevant from current epidemiological

perspectives. As per *Acharya Sushrut*, *shosha* is developed by the intake of *Viprakrista Nidana* which ultimately manifests the disease *Rajayakshma* after getting *Upasarga* of *sannikrista nidana* i.e. *Yakshmana* organism (*Mycobacterium tuberculosis*). He stated 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 favouring the pathogens). In modern science, tuberculosis is an infectious disease which spread from person to person through air when an infected person coughs, sneezes or talks. The risk factors for tuberculosis include overcrowding, poor hygiene, poor living conditions, lack of safe water and unsafe food. An infection is manifested only if agent is able to overcome the host immunity under favourable environment.

### Role of immunomodulators in prevention of rajayakshma

Immunomodulators are substance that modifies the immune response or the functioning of the immune system. Immunity should be maintained by nutritious diet as well as medicine. In *Ayurveda* we can use the following things as immunomodulators to prevent rajayakshma.

1. The *Rasayanas* are supposed to strengthen *Oja* and *Bala* i.e. vitality and bio-strength with natural resistance against aging and disease. *Ayurveda* describes a number of drugs as *Rasayana* and *Ojovardhak* remedies, which are claimed to possess immunomodulatory effect such as *Chyawanprash*.<sup>[13]</sup> It is the foremost of all *rasayanas*, especially good for alleviating cough, dyspnea & hoarseness of voice. It is useful for the wasted, injured and old people and promotes development of children. It is an absolute remedy for improving the immune system, fighting microbes and shielding the body against various infections.

2. The commonly used *rasayana* drugs are *Amalaki*, *Aswagandha*, *Pippali*, *Guduchi* and *Yastimadhu* etc which promote strength of the body. *Yastimadhu* has been found to be immunostimulant, which accelerates lymphocytic transformation activation of macrophage and increases the leucocyte count.

3. *Acharya charaka* mentioned *Jeevaniya* drugs such as *jeevak*, *rishabhaka*, *meda*, *mahameda* etc which promote formation of good quality body tissues and are used in the management of *ojas* disorders like *rajayakshma*, *prameha* etc.<sup>[14]</sup>

4. *Acharya charaka* also defined *Balya* drugs like *bala*, *atibala*, *aswagandha* & *shatavari* etc which enhance

body strength by promoting *ojas*. *Bala* has been considered as action of *ojas*. In absence of *ojas* body becomes unable to perform its own natural function.<sup>[15]</sup>

5. A combination of four important *Rasayana* drugs i.e. *Guduci*, *Ashwagandha*, *Amalaki* and *Tulasi* in equal amounts was found to potentiate both the cellular and humoral components of immunity. The combination was found to potentiate the immune status and helped in faster recovery when used as an adjunct to specific therapy in chronic wasting diseases, multidrug resistant tuberculosis, cancer and other immunocompromised conditions.

## DISCUSSION

*Rajayakshma* is a dreadful disease which has *Ojokshaya* as its causative factor. Thus, In the patients of *rajayakshma* we can increase their *ojas* by use of immunomodulators i.e. *rasayanas*. *Acharya Charaka* has mentioned *Ojas* as *Prakrut Sleshma* hence according to *Samanya vishesha siddhanta Slesmavardhak Aahara & Vihara* can use for increasing *Ojas* in the body such as Milk, Curd, Sugarcane juice, Mamsa rasa, Honey & Ghee etc. *Vyadhikshamatva* depends on *prakrita Ojabala*. Even in the presence of all the symptoms if *Bala* is good then disease is Curable by treatment but if *Bala* is not good then disease is difficult to cure because the patients who are having good strength, they can withstand the severity of medicine. As *acharya charaka* stated that when diseases like *Vatavyadhi*, *Apasmara*, *Kushtha*, *Shopha*, *Udara*, *Gulma*, *Madhumeha* and *Rajayakshma* are associated with loss of strength and muscle wasting then such diseases become *Asadhya* in nature & it should be avoided by the physician. So *bala / vyadhikshamatva* is the important factor for the treatment of *rajayakshma*. For increasing the *bala & ojas*, patients need to follow a good diet regime for better recovery and to avoid complications. In modern science, *Rajayakshma* is correlated with Pulmonary tuberculosis & people who suffer from other conditions that impair the immune system (e.g. HIV) are at a higher risk of developing active TB, as are people who use tobacco, People in resource-poor settings, especially those living in poverty or in crowded living conditions with poor ventilation are disproportionately affected. Thousands of years ago, Modes of transmission of diseases described by *Acharya Sushruta* are relevant even in current scenario and avoiding these modes helps to interrupt transmission of communicable diseases like tuberculosis. For the prevention of the infective diseases the natural methods like cleanliness, hygienic practices, social distancing should be practiced religiously.

## CONCLUSION

The origin or absence of disease is dependent on the presence or absence of *vyadhikshamatva* in the body. The reduction of *Vyadhikshamatva* (immunity) makes the person more susceptible to diseases and the person finds it difficult to overcome the *Vyadhi bala* (strength of

the disease). In *Rajayakshma* due to extreme *dhatu kshaya* (depletion of body tissues) the physical & mental strength of the person reduces but if the person having well formed *ojas* right since birth i.e. *Sahaja Bala* (natural strength) and *yuktikrita bala* which is gained by proper nutrition then he will not fall prey to diseases like *Rajayakshma* easily and will also help in better recovery from the diseases.

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