



## Review Article

### A CONCEPTUAL STUDY REGARDING IMMUNITY IN AYURVEDA

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#### ABSTRACT

It has been estimated that about 6 lacks infant and young children die from RSV annually, and if bacterial co infections are included this number may approach 10 lacks deaths annually. More than 2 million deaths are estimated to result each year the world over as a consequence of diarrheal disease in children of under five years. This statistic shows that children are more vulnerable to infection because their immune system is less or under developed. *Ayurveda* is a vast storehouse of knowledge relevant to human health, disease, medicines and general health-care. However mutual incomprehensibility of the terms and concepts has been a major impediment in meaningful dialogue between modern scientific medicine and *Ayurveda*. Some recent concepts of molecular medicine, immunology etc. have been found to have striking similarities with certain concepts of *Ayurveda*. Therefore, it is being realized that it might be possible to develop a relationship between modern medicine and *Ayurveda*. Here a comprehensive review of the *Ayurvedic* classical texts is presented to understand the concept of the *Vyadhikshamatva* w.s.r. to immunity.

**KEYWORDS:** Immunity, *Vyadhikshamatva*, *Ojas*, *Bala*, *Prakrita Kapha*.

#### INTRODUCTION

The traditional Indian system of medicine and health-care, *Ayurveda* was developed painstakingly over many centuries through a vast amount of careful observations, experimentation and building up of a coherent theoretical paradigm. During its golden period of growth, this system influenced many other systems of medicine viz. *Unani*, *Siddha*, Chinese, Tibetan etc. due to its underlying rational approach. However, in the last few centuries it was gradually eclipsed by the phenomenal success and growth of scientific medicine. *Ayurveda* also stagnated due to its parochial inward looking approach and a lack of willingness to have dialogue with others, particularly with scientific medicine. Mutual distrust, bordering on hostility, between *Ayurveda* and modern scientific medicine impeded evolution of a mutually complementary interface amongst them. This has, on one hand, weakened *Ayurveda* and on the other hand, failed to transfer the benefits of *Ayurveda* to modern medicine. Only in recent times, *Ayurveda* has started gaining global recognition as a vast storehouse of important and useful medical knowledge. It is now being recognized that there is need to develop an effective interface between the two systems to complement the respective strengths of each other. However the most exasperating problem in developing meaningful dialogue between *Ayurveda* and modern medicine is that they have basic difference in their perceptions as well as theoretical paradigms towards observing the reality – the healthy individual or the patient.

#### CONCEPTUAL STUDY

The *Ayurveda* treats the patients as a whole. Its aetiology and pathogenesis of any disease condition is based on the Theory of *Tridosha* i.e. imbalance of the three body humors (*Doshas*, viz. *Vata*, *Pitta* and *Kapha*). The imbalance in *Doshas* and the consequent impact on the body components (*Dooshyas*, viz. *Dhatus* and *Malas*) are supposed to be responsible for disease. This in turn is supposed to influence the path physiology (*Kriya*) of the body. The properties of all the natural and synthetic substances are dealt in terms of their *Rasa* (taste), *Guna* (inherent property), *Veerya* (potency), *Vipaka* (manifest property) and *Prabhava* (influence on the body). Management of the patient may require multiplicity of interventions (*Poorva karmas*, *Shodhan* and *Shaman* etc.) but it may not always be possible to point out the exact component of intervention that results in the management of a specific causative factor.

The *Ayurvedic* concept of *Tridoshas* as the basis of disease seems to be similar to the concept of disease as dissonance. The related *Ayurvedic* concepts of *Atiyoga*, *Ayoga* and *Mithyayoga* appear to be similar to the concepts of excessive interaction, absent interaction and erroneous interaction between receptor molecules and recognition molecules, currently being developed in molecular medicine. Similarly it is being recognized that the central concept of *Rasayana Tantra*, one of the eight major branches of *Ayurveda* that deals with the concepts and methodologies of drug designing is *Vyadhikshamatva*, which is similar to the concept of immunity. The basic principal of *Rasayana*-designing

seems quite similar to current scientific concept of immunomodulation. These realizations indicate that concerted efforts may be helpful in bridging the gap between the concepts and practices of *Ayurveda* and modern scientific medicine. Such understanding shall go a long way towards integration of the beneficial aspects of the two systems and development of a truly holistic system of human health.

When etiological factors come into contact with the body they try to produce disease. At the same time the body tries to resist the disease. This power of the body, which prevents the development of diseases or resists a developed disease, is called Immunity (*Vyadhikshamatva*) in Ayurveda [1].

It is commonly observed that certain persons do not develop a disease even after coming into contact with the relevant etiological factors, while others become victims of the disease. The reason is that when the resistive power of the body is sufficiently strong it destroys the causes. A beautiful simile is used in Manusmriti to illustrate this fact: when a seed is sown in non-fertile soil it is destroyed, just as fire thrown in a fuel-less or air-less place subsides. In this case, the body is analogous to the land, and infection or "bugs" are like seeds. If the body is filled with *Ama* and lacking in *Ojas*, the infection will find it to be fertile ground for spreading, just as land that is fertile will sprout many seeds. If digestion is strong, and *Ojas* rather than *Ama* predominates in the body, then the seeds of infection will not be able to take hold, just as seeds will not take root in land that is infertile.

This strength is attainable from three sources-constitutional, temporal, and acquired. Constitutional strength is that gained from the time of the formation of the foetus onwards. Hence it is dependent on the healthiness of sperm and ovum and also on the excellence of time and place. The temporal strength is the one, which is gained from the favourable condition of time, such as youth, and favourable season. The acquired strength is one, which is achieved by the proper combination of diet, exercise, and other regimens[2].

#### **Vyadhikshama Sharirani**

Individuals having good resistance against diseases. On the other hand, individuals whose physical constitutions are of a type opposite to the eight types mentioned above are capable of resisting diseases. If a person's physical and mental strength is of a high degree then naturally his immunity is also good and such persons can resist diseases very well.

Persons having proportionate bodies and musculature, compactness of the body, and healthy sense organs are not overcome by the onslaught of diseases. They can withstand hunger, thirst, and the heat of the sun, cold weather, and physical exertion. They can also digest and assimilate food properly[3].

Amongst the factors responsible for immunity, the greatest importance has been assigned to the healthy condition of the three tissues-blood, muscle, and bone. In

our opinion the reasons for this are *Ashtau Nindita* [Eight undesirables].

There are eight types of undesirable constitutions: too tall, too short, too hairy, hairless, too white, too black, too corpulent and too emaciated[4]. These constitutions are considered undesirable because they do not possess sufficient resistive power against diseases. The qualitative and quantitative proportions of the tissues are not proper in them. The measurement by finger (*Anguli Parimana*) of the body and the compactness of the tissues is also abnormal. In my opinion these eight types of undesirable constitutions are mainly related to some sort of hormonal dysfunction of the body.

#### **Vyadhikshamatva**

The most significant concepts developed in *Ayurvedic* literature. For the first time *Acharya Charaka* has introduced the term *Vyadhishamatva* in *Ayurveda*. It means all *Doshas* are neither of equal strength nor all the bodies capable of resisting disease equally[1].

The definition of *Vyadhikshamatva* given by *Chakrapani* that *Vyadhikshamatva* denotes the resisting power of the body, which reacts to arrest the progress occurrence or reoccurrence of diseases. In this definition two significant terms *Vyadhi-bala-virodhitva* and *Vyadhiutpada-Pratibandhakatva* have been used in a particular order[1].

- **Vyadhi-bala-virodhitva** – reducing the strength of diseases those already manifested.
- **Vyadhiutpada-Pratibandhakatva** – prevention of those diseases to be yet manifested.

#### **Bala**

The *Vyadhikshamatva* mostly depends on *Bala* that opposes the disorder state of *Doshas*. *Charaka* describes that the maintenance of health depends entirely upon the *Bala*. This strength is attainable from three sources[2]

#### **Sahaja Bala (Constitutional strength)**

It comes from the parents and is inherited. Today in our modern society, many children have allergies to various foods and substances, and appear to be less strong than their parents. These inherited qualities come from their ancestors. According to *Ayurveda's* theory on genetics, genetic factors are defined at the cellular level. The entire cell is referred to as *Beeja*; *Beeja Bhaga* is the nucleus, and *Avayava* are the chromosomes. If two parents' genetic makeup is healthy, the same health is seen in the children, whereas if their genetic makeup includes susceptibility to certain diseases, those diseases will be carried over into the next generation. The effect will be at the cellular, nuclear or chromosomal level. As this immunity is inherited, there is not much one can do except to avert the defects through various modalities of *Ayurveda*.

#### **Kalaja Bala (Temporal strength)**

According to *Kalaja Bala*, the time of day, season, and one's age are important factors for enhancing immunity: strength is greater in the early morning,

spring, and youth than in evening, summer and old age. *Kalaja Bala* is inclusive of one's time, day of the week and place of birth and their impact, marked or subtle, on immunity. Certain places have stronger and healthier climatic and environmental conditions. For example, places with an abundance of water, ponds, cool and pleasant climatic conditions are *Kapha*-dominating areas and contribute to stronger immunity.

**Yuktikrita Bala (Acquired strength)**

It represents acquired immunity, in which disease can be defended against through *Ayurveda*. *Ayurveda* focuses on three plans for acquiring or enhancing immunity:

- I. *Rasayana* is health promoting and rejuvenates the whole physiology, producing resistance against disease both physically and mentally.
- II. *Vyayama* is exercise. Daily exercise of up to 50% of one's exertion capacity enhances digestion, strengthens tissue metabolism and promotes immunity.
- III. *Satmya* is suitability. Adapting to wholesome substances and giving up unwholesome substances, to which the physiology has been addicted since birth, also promotes immunity.

**Importance of Bala in Dasavidha Pariksha<sup>[5]</sup>**

The Bala is classified on the bases of working capacity of an individual and is of three types.

- 1) *Pravara/Uttam Bala*: *Pravara Bala* in which the person is capable of performing all types of physical and mental activity and never feels tired very easily.
- 2) *Madhyama Bala*: The *Bala* that come in between the *Pravara* and *Avara Bala* is known as *Madhyama Bala*.
- 3) *Avara/Heena Bala*: It is quite opposite to the *Pravara Bala*; those persons who possess such type of *Bala* become tired just after a slightest physical and mental activity.

**Table 1: Showing Bala according to season (Kala)<sup>[6]</sup>**

Kala	Bala		
	Uttam	Madhyama	Heena
Adankala	Shishira	Vasant	Grishma
Visargakala	Hemant	Sharad	Varsha

**Table 2: Showing Bala according to age ( Vaya )<sup>[7]</sup>**

Age	Bala		
	Madhyama	Uttam	Heena
	Balyavastha	Madhyavastha	Vridhavastha

**Table 3: Showing diurnal variation and dominant of Dosha also affect the status of Bala<sup>[8]</sup>**

	Bala		
	Uttam	Madhyama	Heena
Dosha	Kapha	Pitta	Vata
Kala	Purvanha	Madhyahna	Aparahna

**Table 4: Factors Decreasing the Bala<sup>[9]</sup>**

Excessive physical exercise	Fasting
Anxiety	Intake of food in small quantity
Habitual intake of food having only one Rasa	Exposure to wind and sun

Excessive elimination of <i>Kapha, Shukra, Rakta</i>	Old age and fear
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Thus physical as well as mental factors also affects the status of *Bala*. All the above factors are seem to be *Vatavardhaka*. This causes *Dhatukshaya* and ultimately *Balakshaya*.

**OJAS**

In Ayurveda, *Ojas* has been considered vital in the defence mechanism of the body. In conditions like diabetes mellitus and malnutrition, where loss of *Ojas* is a constant feature, people are known to be susceptible to various other interrelated and degenerative diseases or recurrent infections.

As a general rule, those who indulge in an irregular routine and eat unwholesome food tend to suffer ill health. Conversely, those who maintain a regular, healthy routine and take wholesome food generally maintain good health. However, it can be observed that some people can tolerate and overcome disease even after indulging in irregular routine and unwholesome food, managing to live healthily and happily. It can also be noted that though some people follow a regular routine and eat wholesome food, they are still susceptible to disease and suffer ill health. These are unanswered questions that are worthy of investigation and analysis.

Reviewing the textual knowledge of *Ayurveda* it has come to light that the food and behaviour that enhances *Ojas* also enhances the strength. This produces stability of body, growth of muscle tissue, interest in medical and physical pursuits, inclination, cleanliness of tone and complexion, correct inclination or cognizance of sense of organs and functions.

**Function of Ojas**

*Ojas* plays a vital role in all three stages of life i.e. *Utpatti, Sthiti and Pralaya*<sup>[10]</sup>.

**In Utpatti**

- (a) In Fertilization
- (b) In growth and development of *Garbha*.
- (c) In viability or Non viability of Foetus.

**(2) In Sthiti Avastha**

*Dosha, Dhatu* and *Mala* are the fundamental units of the body, among there, *Doshas* are said to sustain the body in their normal state. But these *Doshas* even in their physiological state of equilibrium cannot sustain body which is devoid of *Ojas*<sup>[11]</sup>.

It is also said that all the activities of the living body may it be *Kayika, Vacika, Mansika* take place smoothly if it is contained with *Ojas*<sup>[12]</sup>. This it can be inferred that *Ojas* influence the function of physical, sensory, psychic and other higher faculties of the body and maintain the homeostatic condition of body.

The word *Bala* used as the synonym of *Ojas* is because of the cause and effect relationship existing between *Ojas* and *Bala* and hence the term *Bala* in any context represent the status of immunity.



### **Ojas Samya and Vaishmya**

Increase of *Ojas* bestows *Tusti* (satisfaction), *Pusti* (good nourishment) and *Baladaya* (improvement of strength, physical, mental and capacity to resist disease). Hence *Ojas Vriddhi* improves health and prolongs life. So it is considered as ideal to health and to be cherished<sup>[13]</sup>.

*Ojas Kshaya* on the other hand, weakens the body given room to many diseases to develop, shortens life span and even kills the person. Hence this is considered as a serious abnormality and should be prevented from taking place.

As per above details we may safely say that the secretions of endocrinal glands are *Ojas*. The secretion would be perfect only when the nutrition of the subsequent *Dhatu*s is correct and our inclinations are creative and not luxurious. All glands are operated by pituitary gland and it controls all the glands. It has two major parts. If these function properly, then only human beings live otherwise he dies. On the other hand *Ojas* is considered as the vital essence of all the tissues. It is also known as the vital reserve energy of the body, which depends on the good quality of the reproductive tissues. When *Ojas* is in good quality and quantity, the strength of the body and its immunity for fighting against the diseases is at its best.

The scripture-writers have believed in two types of *Ojas*. The first is *Ashtabindu Ojas*, which is the secretion of pituitary gland and is the chief *Ojas*. The other is found in half handful quantity and is called secondary *Ojas*. It flows everyday incessantly. These are the secretions of all glands under the control of pituitary. The blood dominated *Ojas* goes into digestion and *Rasa*-dominated, bright white *Ojas* goes into construction work. The joint function of both is to protect the body and to conserve the power of life. Living beings live till *Ojas* exists and die when *Ojas* is destroyed.

Looking at this clear description we can say that balanced biological *Tridosha* forces, balanced *Agni* & state of hormones, excellence of all *Dhatu* elements and pleasant functioning of sense organs, mind and consciousness with the body's strength contribute to the immunity of the body by way of generating total strength of body (*Kshetra Bala*).

Therefore for any deficiency or alteration in the quantity and quality of *Ojas* of a particular *Dhatu* or *Ojas* in general which may lead to one or the other immunocompromised disorders or syndromes, which is clearly understood from the references where they have described *Ojakshya* or *Ojonasha* as one of the factors of aetiopathogenesis or as one of the main *Dhatu* disturbances or as complications in the disease like anemia (*Pandu*), tuberculosis (*Rajyakshama*), diabetes mellitus (*Madhumeha*), complicated fevers of brain (*Abhinyasa Jvar*), alcoholism (*Madya Janya Madataya*) etc. And also it is described as a condition with its own aetiopathology and stages viz. *Ojovisramsa*, *Ojovyapad* and *Ojakshaya*.

### **Prakrita kapha**

According to *Acharya Charaka* the *Shleshma* occurring in the body naturally is the strength of the body. That means the *Kapha* in its natural state promotes strength in the form of *Ojas* and when in morbid condition, it takes the form of excreta (*Mala*) and causes misery. So the excellence of the *Prakrit Shleshma* in the body signifies the excellence of *Ojas* and indicates a good body immunity<sup>[14]</sup>.

In equilibrium state *Kapha* is considered as a *Prakrit kapha* and when its equilibrium is not maintained it becomes *Vaikrita*. In this condition *Kapha* has lost its natural *Karma* and *Guna*. So persons having in the state of *Kapha Kshaya* or *Kapha Vriddhi* get easily suffered with the diseases due to decreased level of *Bala* or *Vyadhikshamatva*.

### **CONCLUSION**

Since the beginning of 20th century, the serious limitations of reductionist-mechanistic approach began to be realized in various fields. Attempts began at synthesizing and integrating ideas and observations of different fields into a composite whole. Gradually, a shift from reductionist to holistic approach started influencing every field of knowledge. In the field of medicine, it was realized that human health and its management is a very complex problem. It can only be addressed by evolving a holistic paradigm of medicine and health-care. This realization resulted in reinvestigation of traditional systems of medicine, particularly *Ayurveda*. It is being increasingly realized now that *Ayurveda* fundamentally has a holistic approach to human health. As a result, serious attempts to develop interface between *Ayurveda* and modern scientific medicine are being made. Further, some recent concepts of molecular medicine, immunology etc. have been found to have striking similarities with certain concepts of *Ayurveda*. Therefore, it is being realized that it might be possible to develop a dialogue between modern scientific medicine and *Ayurveda*. It might be possible to specify the *Ayurvedic* concepts of *Dhatu* or *Mala* in mutually acceptable and yet chemically well definable forms. It might also be possible to better comprehend *Ayurvedic* concepts like *Doshas* or *Dooshyas* along with *Rasa*, *Gunas*, *Veeryas*, *Vipakas* and *Prabhavas* of *Dravyas* in physico-chemical terms. Here a comprehensive review of the *Ayurvedic* classical texts was presented to understand the concept of the *Vyadhikshamatva* w.s.r. to immunity. *Bala*, *Oja*, *Prakrit Kapha* etc. are compared with immunity.

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