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Conceptual and clinical approach of Immunology in Ayurveda

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ABSTRACT

Immunology is the study of immune system, involved in protecting the body from various infections. Immune system occurs in innate, acquired and artificially induced forms and it deals with the response of body towards antigens and determines whether it is self component or not. It protects body from infections through various lines of defence. Activation, immunodeficiency and hypersensitivity of immune system contribute towards diseases. The functioning of immune system is detected by sensitive immunoassays. The concept of immunology is known since ancient period and *Acharyas* has mentioned about the *Vyadhikshmatva* (tendency of body to fight against diseases), which plays an important role in recovering from any disease. The *Bala* (strength) of person is an important factor to maintain the health and to keep the life free from diseases. With the changing lifestyle, descending quality of food, unfavorable environmental changes, the strength of body is reducing and the ability of body to fight against diseases is decreasing day by day, giving rise to many autoimmune diseases and infections. Ayurveda in its literature has given detailed daily practices that one should follow to keep the body balanced and improve immunity like *Dinacharya*, *Ratricharya*, *Ritucharya* (practices with seasonal variations), *Pathya* (wholesome), *Apathya* (unwholesome) and *Rasayana* concepts has been mentioned as a contributing factor towards immunity. Above mentioned Ayurvedic concepts are helpful in increasing the immunity, rejuvenating the body and also improving the nourishment by reaching at microcirculation level to the tissues. Therefore here an attempt is made, to understand Immunology by considering concepts of Ayurveda.

Key words: *Vyadhikshmatva*, *Dinacharya*, *Ratricharya*, *Pathya*, *Ritucharya*, *Sadvruta*, *Rasayana*.

INTRODUCTION

Immune system is a functional system consisting of chemical mediators, with their transport and lymphatic system in the form of nonspecific (innate) or specific (acquired) immunity.

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Immunity can be understood by the concept of *Ojus*, an essence of *Saptadhatus* established from the time of fertilization itself as an essential component to sustain life. *Ojakshaya* (decreased immunity) leads to the occurrence of diseases in body. In Ayurveda the concept of "*Vyadhi Kshamatva*" which is a normal body functioning and tendency to fight diseases, it varies with nutritional and environment factors. It also implies as *Bala* (strength) of the body.

Rasayana is one of the concept mentioned in Ayurveda to improve the immunity. Some medicinal herbs with special action on immune modulation are explained under *Rasayana*, which is a vast concept explained in almost all the *Samhitas* (Ayurvedic literature) with an enormous data of *Rasayana* available. This peculiar property of *Rasayana* is coming up as a promising future option for immunotherapy.

Concept of Immunity in Ayurveda

Human body born with a basic immune system. Our environment contains a huge range of pathogenic microbes and toxic substances that challenges host immunity. These microbes intimidate normal host functions by attacking the immunity and produces many diseases. Immune system is eliminating pathological microbes and toxic proteins by using a complex array of protective mechanisms. The immune mechanisms permitting recognition of microbial and toxin, and breaks it down. Because of the changing lifestyle, environmental changes and the degrading quality of food we eat is making our immune system weaker this leads to multiple infection, hypersensitivity and a large number of autoimmune disorders.

In Ayurveda, it is directed that people who are obese, over emaciated, with less strength and diminished *Dhatus*, and one who consumes *Apathya* (unwholesome diet) have lesser capacity to resist disease.^[1]

In Ayurvedic *Samhitas* (classical treaties) immunity can be understood in relation to *Kapha*, *Bala*, *Ojas*, *Vyadhikshamatva* and the infectious disease as *Janapadaudhwamsa* being one of the form. Failures of host defence fall into three categories - *Ojokshaya* (immuno deficiencies), *Ojovisramsya* (autoimmunity) and *Ojovyapat* (hypersensitivities).^[2]

Concept of Bala, Ojas and Vyadhikshamatva

Vyadhikshamatva is formed of two words, *Vyadhi* means disease and *Kshamatva* means resistance, therefore it is the capacity of body to resist the disease. *Vyadhikshamatva* varies with individuals depending upon nutritional, environmental and individual factors like physical and mental factors. *Vyadhikshamatva* or *Bala* is of three types as follows.

Acharya Charaka have mentioned *Bala Vridhikara Bhavas* (factors to increase strength of body) as, taking birth in particular places like *Sindha*, taking birth in *Visarga Kala* (season like winter season which are favorable for *Dhatu* (tissue) nourishment), excellent quality of *Bija* (sperm) and *Kshetra* (uterus)

of parents, *Uttama Ahara* (good quality diet) and excellent physique, making excellent diet and lifestyle *Satmya* (wholesome) for the body by practicing in daily life, keeping mental factors superior, younger age, exercising and keeping mind happy are some other factors that promotes health.^[3]

Ojus is an essential component to sustain life, with prime location at *Hridaya* (heart), It gets mixed with *Rasa* and circulates throughout the body via *Das-Mahamula-Dhamani* (circulating vessels).

Two places of *Ojus* prevails which are - *Para Ojas* with *Hridaya* (heart) as its dwelling place, it is in the quantity of *Ashta Bindu* (eight drops) and is responsible for continuation of life, decrease/loss in it's volume gives rise to grave diseases and instantaneous death. The other one is *Apara Ojas* - which is *Sarva Sharira Vyapi* (whole body) like ghee in milk or honey in flowers, *Apara Ojas* or *Shleshmika Ojas* has properties similar to *Shleshma (Kapha)*, in the quantity of half *Anjali* (method of measuring body fluids by *Acharyas*) and its diminution in volume result in absence of strength causes various diseases.

Abnormalities of *Ojus* occurs in three stages of *Oja Vikriti*. First is *Ojas Visransa* (first stage) with features of *Sandhi Vishlesh* (looseness of joints), *Gatra Sada* (weakness of the body), *Dosha Chyavanam* (provoked *Tri Doshas* move away from their normal seats), *Kriya Sannirodha* (inability to perform normal functions), *Shrama* (lethargy in organs), *Aprachuryam Kriyanam* (It also results in the impairment of *Kayik* (physical), *Vachik* (vocal), *Mansik* (mental) function).^[4] Second is *Ojas Vyapad (second stage)* with features as *Stabha Gurugatrata* (Stiffness and feeling heaviness in the body), *Vata Shopha* (swelling caused by *Vata Dasha* impairment), *Varna Bheda* (change in complexion or discoloration), *Glani* (exhaustion), *Tandra* (drowsiness or stupor), *Nidra* (sleep),^[5] and the third is *Ojas Kshaya (third stage)* with features like, *Murchha* (unconsciousness or fainting), *Mansakshaya* (decrease of muscles), *Moha* (mental disturbance specially in judgment), *Agyan* (loss of sense), *Pralap* (delirium), *Mrityu* (death).^[6]

According to *Charak Samhita*, *Ojakshaya* (reduced immunity) leads to *Bibheti* (person is constantly suffer from fear complex), *Durbalo Abhikshanam* (physical and mental debility), *Vyathita Indriya* (feels discomfort in the sense organs), *Duskhaya* (developed impaired or loss of complexion of body), *Durmana* (bad mentation or feeble mental stamina), *Ruksha* (dryness or roughness), *Shama* (skin becomes black), *Kshaya* (Emaciation of the body).^[7]

Factors that reduces Ojas

Factors that reduces *Ojas* are, *Ativyayama* (excessive physical exercise), *Anashana* (fasting for long period), *Chinta* (constant worry), Consumption of foods which are dry in nature, *Pramitashana* (consuming very less quantity of food), *Vata-atapa Sevena* (excessive exposure to heavy blows of wind and sun heat), *Bhaya* (fear), *Shoka* (sorrow), *Prajagar* (keeping awake at nights), excessive elimination of *Kapha*, *Shonita* (blood), *Shukra* (semen) and *Mala* (urine and faeces), *Kala* (due to old age), *Abhighata* (mental and physical trauma) or injury to *Marma* (vital parts), *Kopa* (anger) and *Ativyavaya* (excessive sex).^{[8],[9]}

Factors nourishing Ojas

The nourishing factors of *Ojas* are - food and drugs having same qualities to *Ojas*, keeping mind happy, Avoiding fried-foods / alcohol / hot spicy foods, bitter, sour and pungent substances, desist from sexual intercourse during treatment, good diet, pure foods, organic milk, *Ghrita* (clarified butter) almonds, sesame, honey, rice, fruits, sweet, cold, lighter (easily digestible), *Jeevaniya Gana Aushadhi* (life promoting medicine) like *Mamsa Rasa* (meat juice), milk.^[10]

Concept of Rasayana in Immunity

Rasayana is the means by which one gets the excellence of *Rasa*. Chakrapani clarified on the word *Rasadinam* as *Rasadi Saptadhatu*, & *Shastanam* as *Prashashtha/Uttama Dhatu*.

Benefits: We can get the most favorable nourishment to all *Dhatu*/tissue.

Types: Some of the types of *Rasayana* are mentioned as below.

According to method adopted: 1) *Kuti Praveshika* 2) *Vatatapika*

According to utility: 1) *Kamyas Rasayana* (Saundrya, Bala, Buddhi) 2) *Naimittika Rasayana* (*Naimittikama Vyadhinimittama*) 3) *Ajasruk* (*Ksheer, Ghrita*).

According to Charakacharya: *Medhya Rasayana*, *Dronipravaeshika*, *Achara Rasayana*.

Other *Rasayanas*

1. *Ahara Rupis - Ksheer, Ghrita*
2. *Aushadhi Rupis - Amruta, Guggulu*
3. *Daivi Rupis - Mahamrityunjaya Mantra*
4. *Panchkarma Chikitsa Rupis - Jalanasya*
5. *Adravayabhuta - Satat Adhyana, Guruseva*

Acharya Shrangdhara mentioned Rasayana for different age groups as follows.^[11]

Decade	Loss of features	Desirable Rasayanas
First (0-10yrs)	Balyavastha (Childhood)	Swarna (Gold)
Second (11-20yrs)	Vruddhi (growth)	Bala (<i>Sida cordifolia</i> Linn)
Third (21-30yrs)	Chavi (luster)	Amalaki (<i>Embelica officinalis</i> Gaertn)
Fourth (31-40yrs)	Medha (intellect)	Shankapuspi (<i>Convolvulus pluricaulis</i> Choisy)
Fifth (41-50yrs)	Twak (Complexion)	Jyotismati (<i>Celastrus paniculatus</i>)
Sixth (51-60yrs)	Drusti (Vision)	Jyotismati (<i>Celastrus paniculatus</i>)
Seventh (61-70yrs)	Shukra (reproductive power)	Ashvagandha (<i>Withania somnifera</i> L)
Eighth (71-80yrs)	Vikram (Courage)	Bala (<i>Sida cordifolia</i> Linn)
Ninth (81-90yrs)	Buddhi (intelligence)	Brahmi (<i>Herpestis moniera</i> HBK)
Tenth (91-100yrs)	Karma Indriya (motor organs)	Bala (<i>Sida cordifolia</i> Linn)
Eleventh (101-110yrs)	Chetas/Manas (mind)	Rasayana may not be effective
Twelfth (111-120yrs)	Jivan (ceasation of life)	Rasayana may not be effective

Mode of action of Rasayana in body

Rasayana have multiple modes of action in body which comprises of preventive, promotive and curative aspects of health and carries the most practical methods for management of health and disease through its measures as the *Rasayana-Chikitsa*.^[12]

Potential action of Rasayana^[13]

- *Aamahara* (Anti oxidants)
- *Agni krt* (Provides metabolic functions)
- *Balya* (Increase body strength)

- *Brimhan* (Increases body weight)
- *Chakshushya* (Beneficial for vision)
- *Dantya Daardhyakara* (Beneficial for hardening of teeth)
- *Deepana* (inducing appetite)
- *Garbha Vriddhikara* (Supporting foetal growth)
- *Garbhakara* (Resulting fertility)
- *Garbha-sthaapaka* (Resulting stabilisation of foetus against abortion)
- *Hridya* (Beneficial for heart, cordial)
- *Jeevana* (Life giving)
- *Kanthya* (Beneficial for throat sound)
- *Kesharanjana* (Beneficial for maintaining hair color)
- *Keshya* (Beneficial for hair growth)
- *Medhya* (Promotes retentive intelligence)
- *Paachana* (Promotes digestion)
- *Pushtikrita* (Nourishing)
- *Shonitaasthaapana* (Resulting stabilisation of blood formation and retention against bleeding. Haemostatic)
- *Shrama-hara* (Stress relieving)
- *ShukraJanana* (Promotes reproductive tissues)
- *Sabnija Prabodhana* (Induce consciousness)
- *Sabnija Sthaapana* (Retention of consciousness)
- *Santarpana* (Bulk promoting similar to brmhana)
- *Stanya Janana* (Promotes formation of breast milk)
- *Tarpana* (Refreshing)
- *Tvachya* (Beneficial for skin)
- *Varnya* (Beneficial for skin colour)
- *Vyadhiksamatva* (Build immunity)
- *Vishaghna* (Antipoisonous)
- *Vayasthaapana* (Regulating ageing process)

Clinical Importance

In the normal state of *Ojas* in body, health is maintained, whereas it's depletion leads to pathological conditions. It is present during fertilization, and nourishes *Garbha* (fetus). It circulated between placenta and fetus in eighth month of pregnancy. *Ojas* is responsible for all activities of the body and keeps the *Doshas* in equilibrium.

Rasayana helps in nourishing tissues, by providing *Rasa* at microcirculation level, reduces oxidative stress and hence improves immunity and delays ageing. *Naimittika Rasayana* are used in different diseases and some *Rasayanas* are specifically mentioned by *Acharyas* in *Rogadhikara*, which shows their effectiveness in the indicated disease.

CONCLUSION

Understanding immunity by the concepts of *Bala*, *Ojus*, *Vyadhikshamatva* and importance of *Pathya*, *Apathya* and healthy practices mentioned in Ayurveda, we can conclude that all these concepts play an important role in keeping the body free from diseases and keeping the *Doshas*, *Dhatu* and *Mala* in equilibrium. Any imbalance between these factors and due to low immunity level of body leads to diseases, and with the use of *Rasayanas*, wholesome diet and following healthy practices, one can get rid of these diseases. *Rasayana* concept is an emerging concept in the treatment in Ayurvedic field. There are large number of *Rasayanas* mentioned in *Samhitas* (classical treatises). It can be used in treatment as well as in the form of adjuvant therapy. It is one of an important part of *Ashtanga Ayurveda* (eight sections of Ayurveda). Understanding disease and proper treatment plan with *Rasayanas* makes a precise treatment.

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