



Role Of Immunomodulatory Drugs And Practices From Ayurvedic Perspective -A Literature Review.

1Dr. Sobiya Mohammad Haseeb Khan, 2Dr. Madhavi Rehpade

1M.D. Scholar (Swasthavritta and Yoga), Department of Swasthavritta and Yoga, Bhausaheb Mulak Ayurveda Mahavidyalaya, Nandanvan, Nagpur, 2Professor and H.O.D., Department of Swasthavritta and Yoga, Bhausaheb Mulak Ayurved Mahavidyalaya, Nandanvan, Nagpur

1Maharashtra University of Health Sciences, Nashik,

2Maharashtra University of Health Sciences, Nashik

ABSTRACT:

The statement “prevention is better than cure” and its applications is not new for Ayurvedic health care system. This statement defines the aim and objectives of Ayurvedic health care system in a nutshell “*swasthasya swasthya rakshanam aaturasya vikara prashamanam*”. *Ayurveda* strongly emphasizes on preventive and promotive aspects of health rather than curative. The main purpose of preventive attributes prescribed in *Ayurveda* is to improve immunity. According to *Ayurveda* immunity (*Vyadhi Kshamatva*) means the power of the body which decreases the damaging power of the disease and stops the genesis of the disease. Both plant and animal sources produce immunomodulatory effects to boost the body’s immunological reactivity against infections by engaging the non-specific immune system. Herbal immunomodulators are substances that either activate or suppress innate and adaptive immune responses in the body. Global scientific study is currently focused on how various medicinal plant components might alter the immune system. Numerous Indian and “*Rasayana*” and medicinal plants may have immunomodulatory characteristics. The *Ayurvedic* concepts like *Dinacharya*, *Ritucharya*, *Sadvrutta*, *Pathya Apathya*, *Rasayana*, *Ahara Vidhi Vidhana*, *Panchakarma* etc. also play an essential role in modulating the immune system. The purpose of this review is to focus the light on *Ayurvedic* concepts in the modulation of immune system which is necessary in today's era to live a healthy life.

KEYWORDS : *Vyadhikshamatva*, *Immunomodulation*, *Dinacharya*, *Ritucharya*, *Sadvrutta*, *Pathya*, *Apathya*, *Ahara Vidhi Vidhana*, *Rasayana*, *Panchakarma*

INTRODUCTION

Our changing demographics, changing climate and increase in the mental and physical stress at work causes many harmful diseases. An abruptly changing climate threatens the overall health of human kind. Due to more frequent and severe extreme weather events and increased health risks from a range of other climate hazards including food, water, vector-borne diseases and poor air quality, health care is becoming extremely vulnerable to impacts from climate change. To prevent from all these hazardous effects on health of human being *Ayurveda* is the only choice. *Ayurveda* system of medicine is probably the first which puts in efforts to protect life from diseases and ageing. It becomes very important to strengthen the immunity of all human beings to protect them from today's widely spread diseases. *Vyadhikshamatva* or immunity is one of the basic principles of *Ayurveda* that we are going to discuss in this review.

The fundamental principle of *Ayurveda* are unchangeable and unaffected by winds of doctrines, one of such fundamental principal of *Ayurveda* is *Vyadhikshamatva*. The term *Vyadhikshamatva* is made of two words *Vyadhi* + *kshamatva*. The word *vyadhi* meaning is to harm, to injure, to damage, or to hurt. The word *kshamatva* means to suppress anger or to keep quite or to resist. So, the word means to be patient towards or to resist the disease. *Vyadhikshamatva* was first defined by *chakrpani* in a very scientific manner in terms of *Vyadhibalavirodhatvam*- Capacity of the body to fight against the manifested diseases (natural immunity) and *Vyadhiutpadpratibandhkatvam*- Capacity of the body to not allow to produce disease or pathogenesis. *Vyadhikshamatva* denotes the resistance power of the body or defense of body against first occurrence of any disease. Also in second term it indicate that if body once is being encountered by some disease, it will not allow the disease to be manifested because of possessing a specific resistance power. In today's era a lot of diseases like Covid, Zika virus, chikungunya, monkey pox etc are very prevalent it becomes the need of the hour to empower the immunity of individuals to protect them from falling prey to such illnesses.

Immunomodulators in *Ayurveda* are substances or treatments that help regulate or boost the immune system, enhancing the body's ability to fight off infections and maintain overall health. *Ayurveda* emphasizes the balance of the three doshas (*Vata*, *Pitta*, and *Kapha*) and considers a strong immune system vital for maintaining health and preventing diseases. The concept of "*Ojas*" in *Ayurveda* refers to the essence of vitality and immunity. In Ayurvedic science, various practices are employed in enhancing the immunity even before birth.

The types of *bala* (strength) mentioned in *ayurveda* it has been divided into three main heads. *Sahaj bala* implies the constitutional *bala* present since birth which depends on strong genetic constitution since birth that is strong *shukra* (sperm) and *artav* (ovum) uniting to give birth. Children born with strong genetic makeup are invariably healthy to survive all odds, this is the genome science known to sages of *Ayurveda* when genetics was not even born. Measures of increasing *sahaj bala* has been given in Ayurvedic text. The partners involving in giving birth to the child shall individually indulge in cleansing procedure of *panchkarma* like *vaman*, *virechan* according to dominance of doshas and shall undertake *anuvasan* and *niruh basti*. They are advised to consume *ghrita*, milk medicated with all herbs of *jeevaniya gana* like *jeevak*,

meda, mahameda etc. Thus *sahaj bala* can be correlated to natural adaptive immunity which tends to be adapted since birth from mother.

RAJASWALA PARICHARYA

The female who is menstruating is known as *rajaswala*.

According to *Ayurveda* classics during this periods the *rajaswala* should follow certain rules which are known as *rajaswala paricharya*. Following which leads to the decreased menstrual problems, and a healthy progeny if conception occurs, prevents *yonivyaapada*.

This includes –*Bramhacharini* abstinence during the first three days, this prevents STD'S and pelvic inflammatory diseases. *Havishyam bhojini*- consumption of *shaali, ghrita, takra, yavaka* etc. all these have wound healing properties and antioxidants.

Darbhasanstarshayani- wearing / sitting on *darbha* believed to prevent the energy generated from meditation being released on to the ground.

Avoid head bath-

Eating in clay vessel- clay has alkaline properties, antibacterial effects.

Avoiding intense exercise – can cause luteal phase defects

Kalyanadhyayani-

To avoid *tikshna/ushna/amlavavana*- can result in menstrual distress

To avoid day sleeping

GARBHADHAAN SANSKARA

Pre conception care which begins right from the selection of partners for marriage, advice to couples planning a pregnancy.

This includes proper age[less age can cause neural defects elderly primi may result in downs syndrome], *atulyagotra* [prevention from hereditary diseases] , *rajaswala charya, ritukaal, putriya vidhi, mantra prayoga*.

PUNSAVANA SANSKARA

During *Punsavan sanskara*, the herbs which have been given to pregnant woman provide physical strength and immunity power to foetus. In *Punsavan sanskara*, pregnant woman smells/ drunk the grinded ultra soft part of roots of banyan tree (*vata*- is the symbol of vastness, stability, strength), one slice of *Tinospora/guduchi* (*giloy*- Disease prevention, Invigorating.), and soft strips of poplar leaved tree (*pīpal*- symbol of divinity). These three drugs are as a booster for pregnant mother and increases immunity power as well as infant health.

GARBHINI PARICHARYA

The pregnant women desirous of giving birth to healthy child should follow diet and mode of life that is termed as *Garbhini paricharya* in *Ayurveda*. 'Garbhini' means pregnant woman and 'paricharya' means ideal protocol. It is mainly focused on the dietary regimen of pregnant mother in month wise manner to promote the healthy growth and development of fetus also prevention of *Garbha Vikriti*. It can be correlated with Antenatal care (prenatal care) of modern science. The dietary regimen which includes *ghrita sidhha* with various drugs from the *jeevaniya gana*, *madhu* and *shali* improves fetal Immunoglobulin level thus possess immunomodulatory effect. The maternal immunity is improved and ultimately affects fetal immunity. It is believed that transfer of immunoglobulin to the fetus from mother during pregnancy improves after following the *Garbhini paricharya* and thus also in enhancing the fetal immunity level.

The pregnant woman desiring of a healthy child should follow diet and mode of lifestyle that is mentioned in ayurveda in *garbhini paricharya*.

It is mainly focussed on dietary regimen of pregnant mother in a month wise manner to promote the healthy growth and development of foetus and also prevention of *garbha vikriti*.

All the food that is mentioned possess immunomodulatory effect, it improves the mothers immunity thus improving the childs immunity.

Aahar dravya/ aushadi dravya mentioned- *dugdha*, *madhu*, *ghruta*, *shashti shaali*, *jaangal maans*, *pruthakparni*, *vidaarigandhaadi*, *shaalparni*, *palaash*.

Karma/ practices mentioned: *anuvaasa basti*, *yoni pichchu*, *badaraadi kwaath aasthapan basti* etc.

SOOTHIKA PARICHARYA

Soothika refers to the woman who has given birth. *Soothika* suffers from physical ,mental and emotional roller coaster in the process of delivering an offspring, there is a loss of blood, body fluid and energy in the process, and she becomes fatigued and emaciated and weak.

She then requires all her lost energy and strength for the care and upbringing of her newly born child.

Hence *soothika paricharya* has been mentioned in *Ayurveda*, lifestyle do's and dont's post delivery which deals with the *vaat vruddi* caused in above process.

Ahaar /aushadhi: *Vathar kashay paan*, *ushna gudodaka*, *sneha yavagu*, *maans rasa sevan* etc.

vihaar/practices : *abhyang*, *parishek*, *yoni abhyanga*, etc.

All of these help the mother to return to the pre-pregnant stage, regaining strength, improving digestion, lactation, uterine involution, thus the woman is able to regain her vitality and in turn her immune system strengthens

NAVJAAT PARICHARYA

Care of the new born child is mentioned in detail in *Ayurveda*.

Acharyas stated full critical description to the care of new born from birth till full stabilisation of new born.

Ulva parimarjan, *abhyanga* with *bala tail*, *prana pratyagamana* stimulation of the *cns*, *naalchedana kushta oil* application for healing and prevention from infection, *snana ksheervruksha kashaya* prevention from skin infection, *mukha vishodhana*, *pichchu dharana sneha pichchu* on head strengthens the fontanelles known to elevate the grasping power of the child, *suvarnaprashan*, *garbhodaka vamana*, *jaatkarma*, *dhoopan* with *trivrutta choorna* natural disinfectant.

Hence strengthening immunity since birth.

SWARNA PRASHAN

Administration of processed gold is one of the 16 essential rituals (one among *Jatakarma Samskara*) described in *Ayurveda* for children. *Acharya kashyapa* mentioned benefits of *Swarnaprashana* as follows;

Administration of gold is one of the 16 essential rituals {one among *jatkarma sanskara*}

Acharya kashyap mentioned the benefits of *swarnaprashan*, develops *medha* [mental ability], *agni* [digestive power], *bala* [strength], *ayurvedhan* [prolonged age span], *mangalakara* [auspicious], *punyam* [good fate], *vrushyam*, *varnyam*, *grahapanam* [protection from evil spirits and micro organisms], it helps the child to grow with a better immune system.

It is a sure shot immune booster used in paediatric practise, and used as an immunization programme.

Drugs used: *swarna bhasma*, *madhu*, *ghruta*

Swarnaprashanam Hyotanmedhada Agnibala Vardhanam | Ayushyam Mangalam Punyam Vrushyam Varnyam Grahapaham ||

Swarna Prashana develops *Medha* (mental ability), *Agni* (digestive power), *Bala* (strength) and *Ayurvedhana* (prolonged age span). It is also *Mangalakara* (auspicious), *Punyam* (good fate), *Vrushyam* (auspicious nature and personality), *Varnyam* (enhance colour and complexion), *Grahapaham* (protection from evil spirits and micro organisms). It is an immune booster used in pediatrics practice; its safety and efficacy are well supported by the classical texts of *Ayurveda*. It is also believed in older days that *swarna prashana* helps the child to grow up with a better immune system and intellectual performance. It is the ancient immunization technique with no adverse effect and provides a good life with physical, mental, and social health. So *swarna prashana samskara* should be accepted as immunization program.

DINCHARYA AND RATRICHARYA

The ideal lifestyle or routine or various duties from day to day in a day called daily regimen (*Dinacharya*). Word *Dinacharya* is derived from two words *Dina* & *Charya*. *Dina* means day & *Charya* means *Charan* towards the *Prakriti*. In *Ayurveda*, *Dinacharya* is the best prophylactic measure to prevent many diseases. It regularizes a person's biological clock, improves metabolism & generates self-esteem discipline, peace, happiness & longevity. It is a lifestyle modification to live healthy life in present context or following ancient way of day-to-day activity to maintain the health. According to *Ayurveda*, man is said to be healthy, whose *Doshas*, *Dhatus*, *Malas* and *Agni* are in state of equilibrium along with mental sensory & spiritual pleasantness and happiness. These daily regimes if followed regularly have beneficial physiological effects on our body and our mind.

Some examples are, Waking up early in *Bhrama muhurat* and exposure to bright light in early morning results in the release of serotonin (neurotransmitter Biochemically derived from tryptophan) which contributes to feelings of well-being and happiness and keeps the person active and alert. And *Dhumpana* by *dravyas* having antiseptic and antimicrobial properties then, installing *taila* or *ghrita* in both the nostrils (*Pratimarsha Nasya*) at morning and evening helps to boost immunity. This practice acts as the first line of defense against the destabilizing influences of an external environment and will improve the condition of health, etc.

The ideal lifestyle or routine from day to day or the daily regimen for health promotion and for disease prevention

Dina means day and *charya* means towards the *prakruti*.

Ayurveda prophylactic measure to prevent oneself from diseases.

Consists of *bramhamuhurata jaagran* exposure to early sun rays leading to the release of serotonin.

Other steps *malautsarga*, *dantadhawana*, *mukha prakshalana*, *usha paan nasya* with *til taila*, *gandoosha*, *anjana* with *sauviranjana rasanjana berberis aristata*,

Dhoompan urdhvajatru vaata-kapha har, *vyayaam* daily exercise, *snaana taamboola sevana* etc.

All of these leading in balancing the *doshas* and thus promoting immunity or increasing *bala*.

RITUCHARYA

Ritucharya is prominently discussed in the first few chapters of most of the *Samhitas* of *Ayurveda*. In *Tasyashitya* chapter of *Charaka Samhita*, it is said

“Tasya Shitadiya Ahaarbalam Varnascha Vardhate. Tasyartusatmayam Vaditam Chestaharvyapasrayam,”

which means ‘the strength and complexion of the person knowing the suitable diet and regimen for every season and practicing accordingly are enhanced. Main theme of this chapter is to make people aware concerning the methods to live in accordance with the environment. As human being is also part of the same ecology, the body is greatly influenced by external environment. Many of the exogenous and endogenous rhythm have specific phase relationship with each other; which means that they interact and synchronize each other. If body is unable to adopt itself to stressors due to changes in specific traits of seasons, it may lead to *Dosha Vaishamya*, which in turn may render the body highly susceptible to one or other kinds of disorders. As adaptations according to the changes, is the key for survival, the knowledge of *Ritucharya* (regimen for various seasons) is thus important. People do not know or ignore the suitable types of food stuffs, dressing, and others regimen to be followed in particular season, this leads to derangement of homeostasis and causes various diseases, such as obesity, diabetes, hypertension, cancer, and so on. Lifestyle diseases are a result of an inappropriate relationship of people with their environment. Hence following the *Ritucharya* plays an important role in immunomodulation.

In *Tasyashitiya adhyaya* of *charaka samhita* it is mentioned the strength and complexion knowing the suitable diet and regimen for every season and practicing accordingly is enhanced.

This literally means to live in accordance with the environment.

If body is unable to adapt itself to the environment stressors of every season it leads to *dosha vaishamya* hence leading to diseases.

Which is why different practices concerning different seasons has been described in details.

Ex. *Rutuharitaki, vasantik vaman* etc.

SADVRUTTA

Refers to the code of conduct, ethical and moral principles that help in leading a healthy, happy and peaceful life.

Shareerik sadvrutta physical codes of conduct, *mansika sadvrutta* mental codes of conduct, *dharmika sadvrutta* moral codes of conduct, *samajika sadvrutta* social codes of conduct.

Following all of these leads to *aayu, aarogya, aishwarya* and *yash*.

AHARA VIDHI VISHESH AYTAN

Ahara is one of the vital aspects of life and provides several health benefits especially when consumed in proper manner. The food consumed in proper manner helps to balance *Doshas, Dhatus* and *Agni*. The appropriate dietary considerations synchronize physical, mental and spiritual health. *Ayurveda* presented concept of *Ahara Vidhi Vishesh Aytan* as rules of preparing and consuming meal which helps to achieve health benefits of food. As per ayurveda considerations of *Ahara Vidhi Vishesh Aytan* provides longevity, complexion, strength and immunity, etc. The consumption of meal as per rule imparts many health benefits and gives maximum nutritious value of consumed foods, while avoidance of concept of *Ahara Vidhi Vishesh*

Ayatan not only deprived nutritious value of food but also causes many health ailments including; diarrhoea, indigestion, hyperacidity and anorexia, etc.

PANCHAKARMA

Vigor of seven *Dhatus* (*Rasa to Shukra*) is known as *Oja*; and *Bala* (Immunity) is another name of *Oja* (Vigor). *Bahudosh Awastha Laxana- Balanash* (im-munocompromised state) is mentioned in symptoms of *Bahudoshavastha* in which *Panchakarka* therapy are especially indicated. *Panchakarma* therapies increase *Bala* (Immunity) as mentioned in its benefits of performing *Panchakarma* therapies. *Laxanas of Prakrutistha Purusha* (Signs of normal human health) occurs when cleansing is done through *Panchakarma* therapies. *Panchakarma* therapies have potency to improve *Oja* (Vigor) and *Bala* (Immunity), cure *Balanasha* (immunocompromised state) and acquiring of *Prakruti Purusha Laxana* (Signs of normal human health), considering this fact we can advocate *Panchakarma* therapy individually to improve *Bala* (Immunity). Because of detoxification of all organs including *Koshtha*, *Srotas* and whole body, *Agni Vyapara* (Metabolism) gets enhanced, pre-existing diseases get cured, Body homeostasis is obtained and ultimately *Bala* (Immunity) gets improved at this state body is ready for regeneration and this regeneration is achieved by *Rasayana* (Rejuvenation) and *Vajikarna* (Aphoristic) medicines which again possess immunomodulation potency.

Undoubtedly the most eminent branch of *Ayurveda* is *panchakarma*.

One of the best gifts that *Ayurveda* offered the world has to be this process of detoxification and rejuvenation of the body and eliminating vitiated *doshas* from the roots.

Panchakarma maintains the equilibrium of *dosha*, optimizes the function of gastrointestinal tract, the nervous system, the reproductive system, lymphatics. It rejuvenates the body and slows down the aging process.

Ex- *vamana* – *vasantik vama*, drugs- *madanphala*, *ksheera*, *yashtimadhu*, *lavanodaka*.

Virechan- drugs- *triphala*, *katuki*, *eranda tail*, *ichchabhedi rasa* etc.

Basti- *nirooha basti* , drugs- *makshika*, *saindhava*, *til taila*, *erandamoola kwaath* etc.

Nasya- ex *pradhaman nasya* drugs- *trikatu churna*[*suntha* , *marich*, *pippali*]

Raktamokshana- *shastra*, *anushastra*

RASAYANA DRAVYA

Ayurvedic medicine has many rejuvenating herbs, traditionally known as *Rasayana*, which improve health, immunity, vigor, vitality and longevity, as well as protect against stress and also help in boosting immunity power. The beneficial actions of *Rasayana* herbs have been scientifically proven through experimental as well as clinical studies. *Rasayana* herbs keep enzymes in the cells in their normal state of function. These cells are revitalized and their composition is changed. Tranquillity of the mind is also promoted, which helps combat the process of aging. *Rasayana* therapy is the lead therapy employed to treat *Ojas* or immunodeficient

disorders, in such a way that it increases the essence of each *Dhatu*, starting from *Rasa* and enrich *Ojas*. This resistance power of the body, which prevents the development of diseases, is called as Immunity or *Vyadhikshamatva*. *Vyadhikshamatva* in *Ayurveda* is not merely immunity against a specific infectious agent or disease. *Rasayana* therapy is indicated for the prevention as well as for curing of such type of diseases. It is emphasis on restoration and revitalization, strengthening of tissues and body systems, Concentration on mental and spiritual health. Several medicinal plants have been described as *Rasayanas* in *Ayurveda*. *Ashwagandha* and *Guduchi* are the best of the *Rasayanas* described by *Charaka*. Other drugs that show immunomodulatory effects are *Shilajeet*, *yashtimadhu*, *haridra*, *amalki*, *haritaki*, *bramhi* etc.

Substances that promote health and longevity by boosting immunity.

Examples- *amalaki*, *guduchi*, *shilajatu*, *shatavari*, *triphala* , *bhallataka*, *chyawanprasha*, *shankhapushpi*, *brahmi*.

According to recent studies *guduchi* is known to contain zinc, copper which are anti oxidants, *Amalaki* contains vitamin C , tannin , gallic acid which results in cytoprotective activity .*Haridra* blood purifier, wound healing , anti inflammatory

DISCUSSION

Rasayana therapy is a specialized part of treatment in *Ayurveda* which mainly deals with the disease prevention and promotion of health by revitalizing the metabolism and enhancing the power of immune system. *Rasayana* drugs are not only immunomodulatory activity, but also have other effects such as immune-stimulation, anti-stress, antioxidant properties. Modification and balancing such immune responses with immunomodulatory, antioxidant, and increase the *Ojas Rasayana* offer a huge potential for the development of health promotion and cure of diseases.

CONCLUSION

Vyadhikshamatva as it is understood in *Ayurveda* has much wider implication than the term immunity used in modern medicine. The basic concept of immunomodulation not only existed in *Ayurveda* but is being really practiced by the ayurvedic practitioners for centuries. There is no doubt that the principles and guidelines described in *Ayurveda* to preserve the health, strength and longevity of the healthy person and to care the disease in the ailing and the afflicted are the essential and valuable tools in modulating immunity in a very natural way. But still there is a need for further research in immune modulating effect of this concept in a scientific way to approach for the modern world.

REFERENCES

1. J.S.Tripati, R.H.Singh, The concept of Practice of immunomodulation in Ayurveda and the role of Rasayana as immunomodulators, Ancient Science of life, vol. No.XIX (1&2) July, August, September, October 99, : 59-63.PMCID:PMC3336465 / PMID: 22556921
2. Premavati tewari, Ayurvediya prasutitantra evam striroga, Chaukambha orientalia, Varanasi, 2003. part 2, chapter 5,p. 226.
3. Maharshi Kashyapa, kashayapa samhita, Edited by Prof (KM) P.V.Tewari, Chaukambha Vishvabharathi, Varanasi,vol-1 Sutrasthana,18/27-28 p. 7.
4. Jayesh Thakkar, S. Chaudhari, and Prasanta K. Sarkar *Ritucharya*: Answer to the lifestyle disorders Ayu. 2011 Oct-Dec; 32(4): 466–471.DOI:10.4103/0974-8520. 96117. PMID: 222661838; PMICD: PMC3361919.
5. Agnivesha, Acharya Charaka, Dridabala, Charaka Samhita, Edited by Bramhananda Tripathi, Chaukamba Surabharati prakashan. Varanasi, 2006, Volume 1, Sutrasthana, chapter 6, sloka no 3, p.143.
6. Acharya Vagbhata, Ashtanga Hridaya, Edited by Dr Yadhunandan Upadhyaya, chaukambha prakashan, Varanasi, 2015, Sutrasthana, chapter no.2, Sloka no.48, p.32
7. Acharya Sushruta, Sushruta Samhita, Edited by Kaviraj Ambikadatta shatri, chaukambha Sanskrit sansthan, varanasi. 2015, Chikitsasthana, chapter no. 24, sloka no.68, p. 137.
8. Agnivesha, Acharya Charaka, Dridabala, Charaka Samhita, Edited by Bramhananda Tripathi. chaukamba Surabharati prakashan. Varanasi, 2015, Volume 1, Sutrasthana, chapter no.16, sloka no. 17-19, p.323.
9. Agnivesha, Acharya Charaka, Dridabala, Charaka Samhita Edited by Bramhananda Tripathi, Chaukamba Surabharati Prakashan. Varanasi, 2015. Chikitsasthana, chapter no.1, Sloka no. 7, p.111.