



REVIEW ARTICLE

THE CONCEPT OF IMMUNOLOGY IN AYURVEDA – A CRITICAL REVIEW

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Abstract

Immunity is the capacity to resist a particular disease, particularly by thwarting the growth of a pathogenic microorganism or the effects of its products¹. A person is considered healthy or *swastha* in *ayurveda* if he or she possesses a pleasant state of soul, sensory organs, and mind in addition to an equilibrium state of the *doshas* (body humors), *agni* (bio-digestive fire), *dhatus* (tissues), and *malas* (waste products of the body). Terms like *vyadhikshamatwa*, *bala* and *ojus* are having close meanings to immunity. Immunity of an individual is influenced by various factors like *ahara*, *agni*, *koshta*, *dosha*, *prakriti*, *satwa*, *dathusaarata*, *nidra* etc. Any abnormality in these factors affects the immune status of the individual. By keeping all these factors in equilibrium, the objective of immune enhancement can be achieved.

Introduction

Immunity is a condition of being able to resist a particular disease especially through preventing the development of a pathogenic microorganism or by counteracting the effects of its products¹. According to *ayurveda* an individual is called healthy or *swastha*, if he possesses an equilibrium state of the *doshas* (body humors), *agni* (bio-digestive fire), *dhatus* (tissues), and *malas* (waste products of the body), having a pleasant state of soul, sensory organs and mind. Terms like *vyadhikshamatva*, *bala* and *ojus* are having close meanings to immunity. *Vyadhikshamatva* is the capacity of the body to resist and overcome the factors that bring about diseases or decay in an individual. It can be interpreted as the power of the body to prevent the causative factor of disease and defend against a disease after its onset. These all are possible only with the presence of *ojus* in the body. *Ojus* keeps all the living beings refreshed.

Vyadhikshamatwa, *Ojus* and *bala*

Vyadhikshamatva can be defined as the capability of *sareera* to prevent the *utpatti* of *roga* and also to resist almost all types of *vyadhis*. So it represents the innate and acquired immune system of the body. *Ojus* is considered to be the essence of all *dhatus*. Sufficient quantity and quality of *ojus* provide health

whereas its deficiency leads to disease². The biological functions of the body are possible only with the presence of *ojus*. By its *soumya guna*, *ojus* helps *sleshma* to execute its functions such as *dhridata*, *upachaya*, *sandibandhana* and *bala* to the body. The entire metabolic activities occurring in the human body throughout the lifetime are primarily dependent on *ojus*. The physical, mental and spiritual strength is dependent on *ojus* because all existing *bhavas* are derived from *ojus*.

Dual nature of *ojus*-functionally two *bhavas* of *ojus* can be inferred- *soumya* and *agneya*. The physical and physiological barriers in the body mentioned under the concept of *ojus* are mostly *kaphaja* in nature. According to Acharya Charaka, *prakruta sleshma* is *bala* that can be considered as *ojus* itself³. The whole enzymatic activities in the body can be considered as the *agneya bhava* of *ojus*. The entire metabolic activities occurring in the human body throughout the lifetime are primarily dependent on *ojus*. So *ojus* is the sap of energy which sustains the life of an individual. Any factors that alter *para ojus* result in immediate death and those that affect *apara ojus* result in diseases that gradually lead to death. The health of a person depends upon *bala*. The reflection of the status of health of an individual can be made by assessing the status of *ojus*.

Acharya susrutha mentioned *ojovisramsam*, *vyapath* and *kshayam*- three stages of the decrease of *ojus* in the body. Food and drugs having the same qualities as *ojus* should be used to enhance the quality and quantity of *ojus*. Acharya susruta mentions that all the measures to nourish *bala* that are *avirudha* have to be employed in *ojovisramsam* and *ojovyapath*. Usage of *jeevaniyaoushadhas*, *ksheera*, *mamsa rasas* etc helps to enhance the status of *ojus*⁴. According to Acharya Charaka, preserving *hridaya* and vessels carrying *ojus* will protect *ojus*. He also states that *manas* located in *hridaya* should be well cared for maintaining *ojus* by avoiding *dukha hetus*. He advises the usage of a diet and regimen that are conducive to the *hridaya* and *sroto prasadanam*. These all are considered as the immunomodulatory methods mentioned in *ayurveda* to improve the immunity of the individual.

Acharya Susruta mentioned that *ojus* is *bala*. The resistance to decay and degeneration of the body and natural immunity against disease is called as *bala*. *Bala* is the basis for immunity and is of three types- *sahajam*, *kalajam* and *yuktikritam*⁵. *Sahajabala* is natural, inborn or genetic in nature. *Kalajabala* is governed by seasonal factors and age of person. *Yuktikritabala* depends on healthy practices related to diet, activities etc. So it represents the innate and acquired immune system of the body.

Immunity of an individual is influenced by various factors like *ahara*, *agni*, *koshta*, *dosha*, *prakriti*, *satwa*, *dathusaarata*, *nidra* etc. Any abnormality in these factors affects the immune status of the individual.

Ahara

According to Charaka '*ahara sampath*' is considered as one of the important factor in *balavrudhikara bhava*⁶. It means consuming a proper diet is one of the best ways to increase *bala* and *ojus*. Skin color, clarity, good voice, longevity, intelligence, good fortune, contentment, nourishment, strength and intelligence are all due to food. Acharya Kasyapa considered *ahara* as *mahabhaishajya*. Acharya Susruta states that *ahara* increases enthusiasm, memory, agni, lifespan, lustre and *ojus*. According to Acharya Charaka, undernourishment causes *kshaya* of *dehagni*, *bala*, *varna*, *ojus*, *sukra* and *mamsa*⁷. So *Ojus* is considered the most refined result of digestion, absorption, assimilation and metabolism of food molecules.

As per *Ayurveda*, following a proper diet, having food with all tastes, and taking food that is freshly made and warm including some amount of ghee and oils in the diet, all contribute greatly to improving immunity. The taste, smell and colour of *ahara* should have a pleasurable effect on the mind and senses. Food should be *Pushtivardaka* (Nutrition), *medhya* (Increase Intelligence) and *balya* (Increase Strength and Immunity). Freshly prepared food is worth a lot. The fresher the food, the better it digests. It also reduces *ama* formation. Long-term consumption of incompatible foods can lead to allergies and weaken your immune system. Unwholesome food along with mental and emotional stress can affect the health of gut microbiota. An unhealthy microbiome impacts the robustness of our immune system. Studies prove the bidirectional connection between the gut microbiome and mental stress. Consuming proper foods at right time, right quantity, right season and which are compatible to *prakriti* help to boost our immunity. *Ayurveda* describes several drugs as *rasayana* and *ojovardhaka* remedies, which are claimed to possess immunomodulatory effects. Studies on ghee show that it is rich in butyric acid, which has anti-inflammatory properties and naturally boosts the immune system. Spices such as turmeric, ginger, cloves, and cinnamon have anti-inflammatory properties. Therefore, these drugs exhibit immunomodulatory effects.

Agni

Strength of *purusha* depends upon *agni*. *Agni* is the symbol of excellence in digestion and metabolism. Excellent digestion and metabolism are at par with an excellent immune system. With the help of *Agni*, the body can get nourish-

ment and can perform its functions normally. Any of the body cells cannot do anything without the help of *Agni*. Therefore a *vaidya* should always take care of the *Agni* of the individual, as the *Prasama* or *Prakopa* of *Dosha*, *Dhatu* and *Mala* depends on the status of the *Agni*. Diminution of *Agni* is the root cause of all diseases⁸. *Charakacharya* says, if *Agni* doesn't work at all, the condition will be life-threatening. When *Agni* is in normal status with normal functioning, it is responsible for health and longevity. *Dehagni* augments and supports longevity, complexion, strength, health, and enthusiasm which reside in all the cells of the body and is responsible for all the privileges of life. The basis of the strength of the individual is *agni* and this strength itself is the basis of life. The cessation of functioning of *agni* results in death. Its proper functional state results in long healthy life whereas its abnormal state of functioning causes various diseases. Hence *agni* is considered as basis of life. For maintaining the healthy immune status of the body, proper functioning of *agni* is essential.

Koshta

Koshta has great physiological importance in the human body. It acts as an important seat for *doshas* and has a prime role in *doshagati*. *Koshta* being the seat of *agni*, has a major role in digestion and is the seat of *avastha paaka* and *nishta paaka*. It is considered as *abhyantara rogamarga* and has a prime role in the *samprapti* of diseases. Recent studies on the gut-brain axis emphasise that the health of the *koshta* is very important for maintaining the immunity of the body. Numerous recent studies examining the gut-brain axis have demonstrated a critical role for the gut microbiota in regulating brain development and function, with the immune system acting as a key coordinator of these interactions. Gut bacteria can modulate immune cells not only in the gut, but also in the brain⁹. Health of *koshta* therefore plays an important role in the development of the body's innate immunity.

Dathusaarata

In *ayurvedic* classics, there are seven *dhatu*s described by *acharyas*; they are *rasa*, *raktha*, *mamsa*, *medas*, *asthi*, *majja* and *sukra*. Well-nourished *dhatu*s of the body maintain the health, immunity and vitality of the body. The excellence of *dhatu* indicates the *bala* of the individual. *Ayurveda* gives great emphasis on *ojus* which is the essence present in every *dhatu* responsible for the strength of the body. *Saara* is the vital excellence of each *dhatu*s which indicates the proper functioning of *dhatwagnis*. It helps in assessing the status of physical and mental health. *Bala* is the attribute of *mamsasarata*, *asthisarata*, *majjasarata*, *sukrasarata* and *saravadhatusarata*. Thus *saara* reflects the normal state of *jadaraagni*, *bhootagni*,

dhatwagni and *dhatu*s. *Ojus* and *dathusaarata* have an inseparable relationship. So the excellence of *dhatu* indicates the *bala* of the individual.

Manas

According to *Ayurveda*, different *mansikabhavas* like *chinta*, *shoka*, *kama*, *krodha*, etc. can act as *hetu* for any disease and hence there is an existence of a relation between these *mansikabhavas* and *sharirika vyadhi utpatti*. Whenever disease occurs there must be a reduction in the immune status of the individual and the factors responsible for the disease must be the cause for lowering the immune response. Various *manasika bhavas* (emotions) like lust (*kama*), anger (*krodha*), greed (*lobha*), delusion (*moha*), jealousy (*irsya*), grief (*shoka*), anxiety (*chinta*), fear (*bhaya*) disturbs the homeostasis of both body and mind by vitiating *manasa dosha*, *sharirika dosha* & *agni*. *Mansika bhavas* like *krodh*, *bhaya*, *harsha*, *chinta* etc. (anger and fear, excitement and anxiety) trigger the body's 'fight or flight and fright response. This results in the elevation of adrenalin and cortisol levels in the body. The brain diverts blood away from the gut and towards the muscles, in preparation for physical exertion. Heart rate, blood pressure and respiration increase, the body temperature rises, and the skin perspires. The mind is sharpened and focused. A constant increase in the levels of stress hormones and associated metabolic changes can eventually cause harm to many different systems of the body causing short and long-term health problems. Mental tension, stress and strain, emotional instabilities like fear complexes (phobias), etc. have a tremendous somatic impact in bringing down *jataragni*. First, stress is associated with activation of multiple neuroendocrine systems, including the hypothalamic-pituitary-adrenal (HPA) axis and the sympathetic nervous system "SNS". Activation of these two signaling pathways leads to increased serum levels of cortisol and catecholamines. Immune cells have receptors for these hormones and play a role in regulating the immune system¹⁰. There is the existence of an intense relationship between *mansikabhavas* and immunity which depicts the "*parasparanubandha*" between *manas* and *sharira*. Modern science also made some excellent progressions determining this relation under psychoneuroimmunology. *Acharya rasayana* mentioned in 1st chapter of *Chikitsasthana*, explains this relationship. In *Ayurveda* texts, *Acharya* explained *Satvavajaya* and *Daivavyapashrya chikitsa* because they had always known that "mind affects body."

Prakriti

Prakriti has a crucial role in determining the disease susceptibility, progression of the disease, duration of treatment as well as treatment response. In *Ayurveda*, it is known that certain *prakriti* types are more likely to develop certain types of diseases,

and that all *prakriti* types, with the exception of *samaprakriti*, have a tendency to experience illness whenever precipitating factors occur¹¹. The status of ojus may vary according to different *prakriti* types. It has been mentioned that ‘*bahuoja*’ is the *lakshana* of *kapha prakriti* individuals. So the *sithilatha* produced in their body is slow due to the *sthira guna*. Qualities of *pitha* in *pithapradhana prakriti* individuals are *ushna, teekshna, drava, visra, amla* and *katu*. So *pithapradhana prakriti* individuals have the innate *ushna teekshnadi guna* predominance. By its *ushna, theekshna, laghu, and drava* properties it accelerates the *kleda* production. By *theekshna* property, their body cannot tolerate strain. Due to these particular properties, the tendency to cause inflammation is also more in *pitha*-dominant *prakriti* when physiologically favourable conditions arise. Due to *ushna, teekshna gunas, pitha prakriti* individuals have a tendency for an inflammatory process which accelerates the disease process and fastly lead to complications. Qualities of *vata* in *vata pradhana prakriti* individuals are *ruksha, laghu, chala, bahu, seeghra, seetha, parusha* and *visada*. Due to the faster advancement of metabolism of *vata pradhana prakriti* individuals, there is a chance of faster progression of diseases in this *prakriti*. Hence the immune status of the person varies depending on the predominant *dosha* in the *prakriti*.

Nidra

Ayurveda mentioned that *ahara* (food), *nidra* (sleep) and *brahmacharya* (celibacy) as *trayopstambha*, three pillars which support the health of the body. *Nidra* is also important as *ahara* for maintaining health. *Nidra* comes under an insuppressible urge. Getting enough sleep at the right time supports well-being and good quality of life. Proper *nidra* protects the growth and development of the body (*dathupushti*). *Vidhipurvaka nidra* bestows *sukha, pushti, bala, vrushata, and jeevita* and *asamyak nidrasevana* leads to the opposite namely *dukha, karshya, abala, kleebata* and finally *alpayu or mrityu*¹². Sushruta samhita says timely sleep (*kalashayana*) leads to *pushti, varna, bala, utsaha, agnidipti, atandra* and *dhatuamyas*. Here both physical and mental aspects are included¹³. Sleep is essential for the normal functioning of the body. Sleep restores physical and mental strength. The ability to think and concentrate is enhanced with adequate sleep. Sleep consolidates learning and memory. Adequate sleep promotes and maintains growth as during sleep growth hormone secretion is more. Due to sleep and circadian rhythms, a wide range of cellular and metabolic processes are coordinated which together enable stability and survival¹⁴. According to *Charaka* “*nidra is dehastithikarini*”, means just like food, sleep is an important factor responsible for maintaining proper health of the body.

Conclusion

The concept of immunity is explained in Ayurveda under several topics, most importantly *Vyadhikshamatwa, Ojus* and *Bala*¹⁵. Several factors are responsible for maintaining healthy immune status of the individual. The concept of *Ayurvedic immunology* is a unique as it has inherent bonds with *ahara, agni, koshta, nidra, satwa, dathusarata* etc. There is a great deal of synergy between *ahara, agni, koshta, dathusaarata, ojus, balam, manas* and *nidra*. Any abnormalities in these factors result in an imbalance in their synergy, lowering the immunity of the person and finally resulting in diseases. By keeping all these factors in equilibrium, the objective of immune enhancement can be achieved.

References

1. <https://www.merriamwebster.com/dictionary/immunity>
2. Prof.K.R. SreekanthaMurthy.Vagbhata’s ashtangahridayam. 10thedition.Varanasi: Chaukhambha Krishnadas Academy; 2014. Volumel, Sutrastana. Chapter11/37.p.163
3. Dr. Ramkaransharma and VaidyaBagwan Dash. Agnivesa’sCharakasamhita. Reprint edition. Varanasi: Chaukhambha Sanskrit series office; 2015. Volume I, Sutrasthana. Chapter17/117.p.334
4. Prof.K.R. SreekanthaMurthy.Vagbhata’s ashtangahridayam. 10thedition.Varanasi: Chaukhambha Krishnadas Academy; 2014. Volumel, Sutrastana. Chapter11/39,40.p.165
5. Prof.K.R. SreekanthaMurthy.Vagbhata’s ashtangahridayam. 9thedition.Varanasi: Chaukhambha Krishnadas Academy; 2013. Volumel, Sareerastana. Chapter3/77.p.111
6. Dr. Ramkaransharma and VaidyaBagwan Dash. Agnivesa’s Charakasamhita. Reprint edition. Varanasi: Chaukhambha Sanskrit series office; 2015. Volume I, Sutrasthana. Chapter27/349.P.565
7. Dr. Ramkaransharma and VaidyaBagwan Dash. Agnivesa’s Charakasamhita. Reprint edition. Varanasi: Chaukhambha Sanskrit series office; 2015. Volume I, Sutrasthana. Chapter24/68.P.566
8. Prof.K.R. SreekanthaMurthy.Vagbhata’s ashtangahridayam. Reprint edition.Varanasi: Chaukhambha Krishnadas Academy; 2014. Volumel, nidanastana. Chapter12/1.p.113
9. Microbiota-immune interactions: from gut to the brain. LymphoSign Journal. 2020, March; Volume 7:p1
10. Hemant Kumar et.al. Understanding the relation between mansikbhavas and vyadhiutpatti w.s.r. immunity.IAMJ. 2020,September
11. Dr. Ramkaransharma and VaidyaBagwan Dash. Agnivesa’s Charakasamhita, text with english translation and critical exposition based on Chakrapanidatta’s ayurveda dipika, Reprint edition. Varanasi: Chaukhambha Sanskrit series office; 2015. Volume I, Sutrasthana. Chapter7/40.P.154,156

12. Agnivesh "CharakaSamhita". Revised by Charaka and Dridhabala with the Ayurveda Dipika commentary of Chakrapanidatta. Chaukhambha SamskritSamsthana. Varanasi. Reprint 2004 2
13. Dr Shashtri A D. SushrutaSamhita with AyurvedTattvaSandipikaVyakhya. Chaukhambha SamskritSamsthana. Varanasi. Reprint 2005
14. Vyazovskiy V. V. Sleep recovery and meta regulation: explaining benefits of sleep. Nature and Science of Sleep (Dove Press). 2015, Dec, 7; p. 171- 184. [Pubmed]
15. K. Pradeep et.al. An observational study on immune related disorders and their treatment response in ayurveda- case series. JPRI. 2021, July, 15.

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