



A Brief Classical Review on Mechanism of Autoimmunity

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ABSTRACT:

The rising incidence of autoimmune diseases is straining the healthcare system's capacity to care for patients with autoimmunity. Autoimmune disease occurs when the immune system attacks self-molecules as a result of a breakdown of immunologic tolerance to auto-reactive immune cells. Autoimmune reactions reflect an imbalance between effectors and regulatory immune responses.

The healthy and joyful long life is the main priority of Ayurveda. Health and disease is an integral element of an individual's life. Ayurveda explained the concepts related to health and diseases in details, also the knowledge of aetiology, symptomology, therapeutics, numerous methods to sustain healthy status and causes behind falling sick. Ayurveda has explained many basic principles of the disease manifestation. Autoimmunity can be understood when one's vyadhi-kshamatva has been reduced.

Therefore, this review article attempts to explore the explanation of autoimmunity in our classics.

Introduction:

Survival depends on a host's ability to recognize and eliminate pathogens. Everyone is not equally susceptible to diseases, but it depends on *Vyadhi-kshamatva*, *vikara-vighata-bhaa-abhava*, *bala*, *agni* of a person. *Ayurveda* emphasizes the promotion of health through the strengthening of host defences. Immunology is described as *Vyadhi-kshamatva* and *Oja Bala*¹. Hence the resistance power and immunity together are manifested by the *Ojas* which is present throughout the body². *Ojas* is the essence of all the *Dhatu*³ and is responsible to protect the body.

Aims & Objective:

Explorative study of autoimmunity in contemporary & as per our classical literature.

Material & Methods:

This article has been prepared on the basis of thorough study of the relevant topics from classical literary materials such as *Charaka Samhita*, *Sushruta samhita* with its commentary by *Dalhan*, *Astanga hridaya* etc.. Various textbook of contemporary medicine and pathology have been referred to collect material about autoimmunity and its mechanism. Relevant articles are also reviewed to complete this article.

Observation:

Autoimmunity

Normal immune system has inbuilt capacity to distinguish self from non self. Autoimmune disease occurs when the immune system attacks self-molecules as a result of a breakdown of immunologic tolerance to auto-reactive immune cells^{4,5}.

Autoimmunity refers to mere presence of either auto-antibodies or T cell self-reactivity against own tissues. The loss of tolerance to one's own tissues is autoimmunity^{5,6}.

Immune tolerance⁷:

It is defined as the ability of an individual to recognise auto-antigens and show selective unresponsiveness to auto-antigens. Lymphocytes with receptors capable of recognizing self-antigens, are being generated constantly and inactivated as soon as possible to prevent them from causing harm.^{4,5,6}

Currently, three general processes are thought to be involved in the maintenance of selective unresponsiveness⁶.

Table.01- Mechanisms preventing autoimmunity⁶

- | |
|--|
| 1. Sequestration of self-antigens |
| 2. Generation and maintenance of tolerance * |



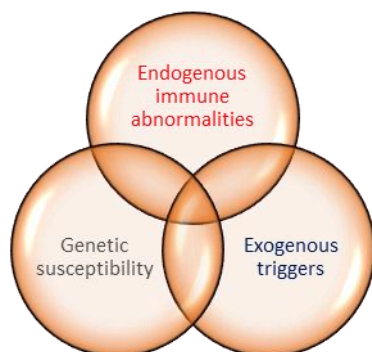
- a. Central deletion of auto-reactive lymphocytes
- b. Peripheral anergy of autoreactive lymphocytes
- c. Receptor replacement in autoreactive lymphocytes.

3. Regulatory mechanism

- a. Regulatory t cell
- b. Regulatory b cell
- c. Regulatory mesenchymal cell
- d. Regulatory cytokines
- e. Idiotype network

Pathogenesis of Autoimmunity:

Fig.1 etiologic factors⁴



Autoimmunity arises from a combination of the inheritance of susceptibility genes, which may contribute to the breakdown of self tolerance and environmental triggers, such as infections and tissue damage which promotes the activation of self-reactive lymphocytes.⁸

Role of Genetic susceptibility:

A large number of genome-wide association studies have suggested a role for numerous genetic polymorphisms in different autoimmune diseases^{6,8}. Most autoimmune diseases are complex multi-gene disorders. Among all genes the greatest contribution is from the HLA genes i.e. particular MHC alleles (mainly class II HLA alleles) which are associated with the autoimmunity. Alternately, cross reactivity between MHC gene products and microbial protein products may incite autoimmunity by molecular mimicry.^{4,9}

Table 02: HLA loci predisposing to autoimmune disease.⁴

Disease	HLA locus
Ankylosing Spondylitis	HLA-B27
DM Type-1	HLA-DRB1, HLA-DQB1
Rheumatoid Arthritis	HLA-DRB1
SLE	H:LA-DRB1
Multiple Sclerosis	HLA-DRB1
Pernicious anaemia	HLA-DR5
Coeliac Disease	HLA-DQ2, HLA-DQ8

Role of infections:

Many autoimmune diseases are associated with infections, & clinical flare ups are often preceded by infectious pro-dorms. **Two mechanisms postulated** in order to understand⁴⁻⁵:

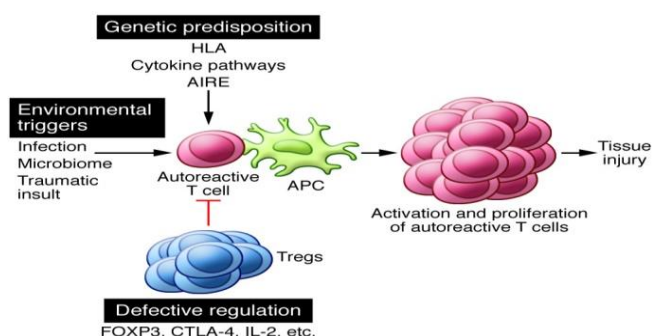
- i. **Up-regulation of co-stimulatory signals on APCs:** if these cells are on presenting self antigens then results in breakdown of clonal anergy & activation of T cells specific for self-antigens.
- ii. **Molecular Mimicry:** Immune response against the microbial antigens resulting in the activation of self-reactive lymphocytes. The molecular mechanism used by pathogens to colonize, invade, infect, and disrupt the host are numerous and diverse¹⁰.

Example- RHD in which antibodies against Streptococcal proteins cross reacts with myocardial proteins causing Myocarditis. Evidence of EBV infection in post-mortem brain tissue has been associated with MS⁹.

Environmental triggers :

A well recognised non microbial environmental trigger is Ultraviolet-irradiation which is often as etiological triggering factor in case of SLE⁸.

Fig.2.pathological event

Table.03. mechanism of autoimmunity⁶

I. Exogenous

- A. Molecular Mimicry
- B. Super antigenic stimulation
- C. Microbial & tissue damage-associated

II. Endogenous

- A. Altered antigen presentation
 - i. Loss of immunologic privilege
 - ii. Presentation of novel or cryptic epitopes
 - iii. Alteration of self antigen
 - iv. Enhanced function of antigen-presenting cell [costimulatory molecule expression/ cytokine

CONCEPT OF VYADHI-KSHMATVA:

The term *Vyadhi-kshamatva* consists of two words *Vyadhi* + *kshamatva*

Vyadhi meaning harm, damage or hurt, and *kshamatva* meaning- suppress or to resist¹¹

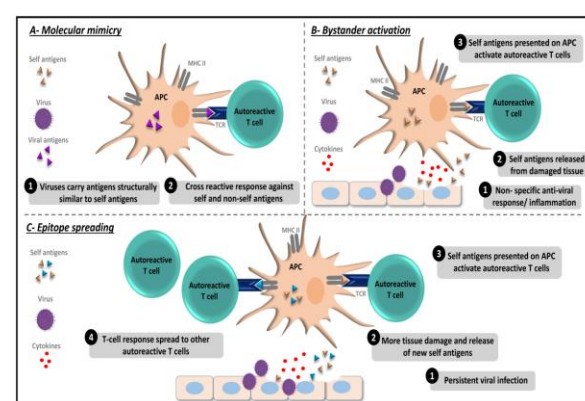
Kshamatva defined as the inherent capacity of the body either toward the precipitation of the disease or to check its intensity to make the body withstand or resist when affected by the disease.

When etiological factors come in 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 *Vyadhi-kshamatva*¹⁰. *Vyadhi-kshamatva* implies a resistance against the loss of the integrity, proportion, and interrelationship amongst the individual's *doshas* and *dhatu*s. Resistance to disease or immunity against disease is of two kinds i.e. the one which attenuate the manifested diseases i.e. "vyaadhibalavirodhitvam" and other variety prevents

production]

- B. Increased T cell help
- C. Increased B cell Function
- D. Apoptotic defects/ defects in clearance of apoptotic material
- E. Cytokine imbalance
- F. Altered immunoregulation

Fig.03. pictorial presentation of various pathogenesis of autoimmunity



the manifestation of diseases i.e. "vyadyutpadapratibandhakatvam"¹⁰

CONCEPT OF OJAS:

Sushruta acharya has mentioned *Bala* as a synonym of *Oja*³. *Ojas* is defined as the final excellent product of *Saptadhatu*s starting from *rasa* and ending with *shukradhatu*. The resistance power and immunity together are manifested by *Ojas* component which is present throughout the body i.e., *Sarvashariravyapi*¹².

In a word, *ojas* has been considered vital in the defence mechanism of the body. In all diseases, *ojas* get affected by the production of the disease of the respective system²

Any fluctuation in *oja* tends to generate disease causing elements in the body. *Oja* gets deformed in three ways: *Ojo-Kshaya*, *Ojo-Vyapad* and *Ojo-Visramsa*. Out of these, *Ojo-Visramsa* may be considered as most relevant with the concept of Autoimmunity. *Ojo-Visramsa* can be defined as the dislocation or the



diversion of *oja* from its normality, whether it may its normal location, structure or function¹.

CONCEPT OF VIKARA-VIGHATA-BHAVA-ABHAVA¹³:

An individual may not be born with a disease but is at a risk of developing it at any stage of life. According to *Ayurveda* presence of *Nidana* (causative factor), *Dosha* (three humours of body) and *Dhushyas* (*Dhatus/Upadhatus/Malas*) is essential for the manifestation of a disease. But the presence of these three is not an absolute assurance for the manifestation of a disease. Presence or absence of a fourth factor called *Vikara Vighata Bhava* will decide the occurrence and non-occurrence of a disease in an individual¹⁴.

CONCEPT OF SAHAJA SATMYA¹²:

Viruddairapi na tvaete gunardvanti parasparam
Dosha sahasatmyatvadvisham gohramahiniva
||cha.chi.26/293

As stated by *Acharya Charaka*, *sahasatmya* meaning *svabhavika-satmyayibhava* meaning the inherent mutual tolerance of each other (*dosha*) that is though each *dosha* have their specific opposite *guna* to each other like *kapha* has *sneha*, *picchila*, *guru*, etc... *guna*, *vata* has *laghu rukhsa* etc.. Opposite to that of *kapha* they are mutually tolerant to each other which is similar to that of the *visha* which is present in the *sareera* of the *sarpa* and that doesn't cause any harm to the *sarpa* due to its *saha ja satmya*.. *Satmyayi bhava- na upaghatakatva* meaning that which doesn't cause damage to other.

CONCEPT OF BEEJA DUSHTI:

The concept of *bija dushti* is explained in the *shareera sthana* of *Charaka samhita*. *Sushruta acharya* has classified hereditary and congenital types of diseases such as; *sthoulya*, *klaibya*, *prameha* and other diseases occurs due to the defect in genetic component¹⁷. The *beeja* (germinal cell), *beejabhaga* (chromosome) and *beejabhagavayava* (gene) are considered responsible for hereditary diseases along with other factors. Any variation in *beeja*, *beeja bhaga*, *beejabhagavayava* can lead to manifestation of various inherent disorders in the progeny¹⁵.

Discussion:

The human body is in continuous exposure to external and internal stresses which make the body vulnerable to diseases. But the tendency to have the disease is prevented by many factors within the body

1. *vyadhi-kshamatva* is of two kinds- *vyadhyutpada pratibandhakatwa*-i.e capacity to prevent the onset of disease and *vyadi balanirodhakatwa* – i.e capacity to restrain or withstand the strength of the disease. Both of them together form Resistance and immunity¹⁶. This can be understood in terms of autoimmunity when the *vyadhi-kshamatva* has reduced. So if there is defective elimination or control in self reactive lymphocytes then it leads to autoimmunity.

2. *Oja* the quintessence of the seven *dhatus* is responsible for providing immunity to the body. Even though this *ojas* is the essence of all the *dhatus* inside the body, its production, maintenance, storage, utilization and proper circulation inside the body must be consistent and proportionate.

3. The word *vikara* meaning disease, *vighata* is to obstruct *Bhava* are those causes that helps in preventing the disease & *Abhava* are the factors which leads to the formation of the disease. Thus when there is proper identification and regulation of lymphocytes or when they are in control the resistance to disease manifestation are in check. But when this identification of self is lost then it leads to manifestation of autoimmunity.

4. The fundamental underlying mechanism of autoimmunity is defective control of self-reactive lymphocytes. When *dosha* are in *shaja-satmya* that is in *na upaghata kara bhava* they tend to have a normal health but when it becomes *viruddha* lead to *upaghata* to the body¹⁵. Hence if there is defective control of self reactive lymphocytes or defect in identification it leads to autoimmunity.

5. The involvement of genetics in the manifestation of autoimmunity can be understood in terms of *beeja dushti* as explained by *Acharya Charaka* as well as *Acharya Sushruta*. The specific variation at the level of *beejabhagaavyava* can be interpreted as the variation in specific HLA genetic body which is often susceptible in the generation of autoimmune disease.

Conclusion:



Autoimmunity is present in all individuals in whom the breakdown of one or more of the basic mechanisms regulating immune tolerance results in self reactivity that can cause tissue damage. The healthy state of the body rests on the state of dynamic equilibrium of *Dosha, Dhatu, & Mala* components. *Ayurveda* has given the significant importance to *ojas* as its presence needed for survival as well as for performing important function of the body. So as long as *ojas* present in sufficient quantity in the *dhatu's*, it does not allow the *dosha*, to cause *vaishmya*. Once, the *ojas* undergoes decrease in its quantity or qualities the *dhatu* become easy prey and give rise to onset of disease.

Autoimmune reactions reflect an imbalance between effectors and regulatory immune responses, typically develop through stages of initiation and propagation, and often show phases of resolution (indicated by clinical remissions) and exacerbations.

Thus mechanism of autoimmunity can be understood as defect in function of *ojas*, reduction in *vyadhi-kshmatva*, absence of *vikara-vigraha-bhava*, variation in *beeja* and *satmyata* of *dosha* as per our classics.

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Conflict of Interest:

We declare that we have no conflict of interest.

Reference:

1. Ayushi Patel, Namrata Tiwari, Dileepsingh, Analytical study of Rheumatoid Arthritis w.s.r. to Ojo-visramsas as Autoimmunity. *Journal of Ayurveda & Integrated medicine* Feb-2023, Vol-8, issue-2, pg-97-100.
2. Afroja Yeasmin Akhtar Raji et.al. Concept of Ojus: A Scientific Analysis, *Journal of Ayurveda and Integrated Medical Sciences*, Feb-2022, vol-7, issue-1, pg-150-157
3. Acharya Yadavji Trikamji, Sushruta Samhita of Sushruta with the Nibandha Sangraha commentary of Sri. Dalhanaacharya; Varanasi. Chaukhamba Orientalia; 2021; Su su.15/19-20; pg-104
4. Harsh Mohan, Immunopathology including amyloidosis Textbook of Pathology 8th edition, New Delhi, Jaypee Brothers Medical Publishers(P), Ltd. , 2018
5. Kumar, Abbas, Fausto, Aster, Robbins and Cotron , Diseases of immune system, Pathologic Basis of Disease, 8th Edition, Amsterdam, Elsevier Inc.2010
6. Kasper, Fauci, Hauser, Longo, Jameson, Loscalzo, 377e Autoimmunity and autoimmune disease, Harrison's Principles of Internal medicine, Vol.03, 19th edition, M cGraw hill Education, Private Ltd, 2015
7. <https://www.niaid.nih.gov/research/immune-tolerance>
8. Rosenblum MD, Remedios KA, Abbas AK. Mechanisms of human autoimmunity. *J Clin Invest.* 2015 Jun;125(6):2228-33. doi: 10.1172/JCI78088. Epub 2015 Jun 1. PMID: 25893595; PMCID: PMC4518692
9. Kasper, Fauci, Hauser, Longo, Jameson, Loscalzo, 373e ,The Major Histocompatibility Complex, Harrison's Principles of Internal medicine, Vol.03, 19th edition, M cGraw hill Education, Private Ltd, 2015, pg.no-1-9
10. Kasper, Fauci, Hauser, Longo, Jameson, Loscalzo, 375e , Harrison's Principles of Internal medicine, Vol.03, 19th edition, M cGraw hill Education, Private Ltd, 2015
11. Patil.S.Baghe A.S.. Review on concept of ojas in ayurveda with reference to immunology.int.J.Ind.Me. 2021,2(4):1-10
12. Acharya Vaidya Harischandra Simha Kushavaha, Charaka Samhita with Chakrapani commentary Ayurveda dipika, Edition: Varanasi, Chaukhamba Orientalia 2012; vol-1, Ca.Su 28/7, pg-472
13. Dr. P.S.Byadgi, Parameshwarappa's Textbook of Ayurvediya, vikruti-vijnana & Roga Vijnana, Varanasi, Chaukhamba, reprint 2022, vol-01, pg.no.275
14. Acharya Vaidya Harischandra Simha Kushavaha, Charaka Samhita with Chakrapani commentary Ayurveda dipika, Edition: Varanasi, Chaukhamba Orientalia 2012; vol-1, Ca.Ni. 04/4, pg-
15. Acharya Vaidya Harischandra Simha Kushavaha, Charaka Samhita with Chakrapani commentary Ayurveda dipika, Edition: Varanasi, Chaukhamba Orientalia 2012; vol-1, Ca.Chi 26/293, pg-718



16. Chavan, A. “ayurveda perspective of genetics w.s.r. to bija, bijabhaga and bijabhagavayava”. Himalayan journal of health sciences, vol. 3, no. 1, apr. 2018, pp. 1-3, doi:10.22270/ijist.v3i1.
17. Anand G. Keriyawar et al. Vikara Vighata Bhava - Concept of manifestation and non manifestation of a disease Journal of Ayurveda and Integrated Medical Sciences | July - Aug 2020 | Vol. 5 | Issue 4 188-194.
18. ANANTHA LEKSHMI RAGHU. (2021). *Exploration of the concept of Vikara Vighata Bhava Abhava w.s.r. to Prameha. Ayurlog: National Journal of Research in Ayurved Science*, 9(02). <https://doi.org/10.52482/ayurlog.v9i02.80>