



CONCEPT OF AUTOIMMUNE DISORDERS IN ANCIENT AYURVEDIC LITERATURE W.S.R TO VIRUDHA AHARA VIHARA: A LITERATURE REVIEW

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ABSTRACT In Ayurveda classics Ahara (food) is an indispensable part of life. Ahara is considered to be vital for human body as it provides the basic nutrients which are very essential to carry out the basic activities of digestion and metabolism of immune system of human body. Ayurveda emphasizes on consuming healthy and nutritious diet. Mainly the difference between health and disease depends upon what we take rather it is wholesome diet or unwholesome diet. Incompatible diet or unwholesome diet is viruddha Ahara a unique concept in Ayurveda viruddha Ahara referred in terms of food interaction or food processing interaction develops toxicity in modern text as Autoimmune disease. Ayurveda clearly defines good food habits along with certain diet and its combinations that creates toxicity in the body tissue. Autoimmune disease occurs when the immune system attacks self-molecules as a result of breakdown of immunologic tolerance to auto reactive immune cells. Many Autoimmune disorders have been strongly associated with genetic infections or environmental predisposing factors by which toxicity was produced in body. So due to the toxicity the new epitope is introduced to the immune system of the body. So the (TLRs) Toll like receptors part of the innate immune system that recognizes molecular signatures, are important in the recognition of pathogenic components. However, when a specific cellular content develop in which TLRs are inappropriately activated by self-components, lead to sterile inflammation and result in the occurrence of autoimmunity.

KEYWORDS : Autoimmunity, Viruddha Ahara , TLRs , Epitope spreading , Molecular mimicry.

INTRODUCTION:-

Ayurveda is one of the most ancient medical sciences which is still continuing and proving its effectiveness in present scenario. It helps in the maintenance and promotion of positive health of a healthy person and also helps in the other cure of the disease. *Ayurveda* focus more on the healthy living and the well-being of the person. For healthy living, *Ayurveda* emphasizes on consuming right kind of diets which is healthy and nutritious otherwise called wholesome diet. *Ahara* is one of the important factors supporting this life. ^[1] Diet is considered to be vital for a human body as it provides basic nutrients, which are necessary to carry out the basic activities of digestion metabolism of immune system. According to *Ayurveda* the food which is wrong in combination has undergone wrong processing, consumed in incorrect dose or incorrect time of the day and in wrong season can lead to incorrect metabolism that leads to toxicity and have the opposite property to the *Dhatu* (fundamental tissues) are called as *Viruddha Ahara* or incompatible diet or unwholesome diet. ^[2] Continuous intake of such food is the cause of manifestation of several diseases, both physical & psychological. ^[3]

Types of Viruddha Ahara:-

Ayurveda literature has described various types of *Viruddha Ahara*. *Maharishi Charak* has mentioned that 18 types of unwholesome diet can lead to disease like abdominal distention, stiffness in neck, varieties of anaemia, indigestion, insanity, various skin diseases, disease of intestine, fever, rhinitis and infertility etc. ^[4] As per the body system it can be said that, immune system, endocrine system, digestive system, nervous system & circulatory system are affected by continuous consumption of *Viruddha Ahara*. With the help of modern technology and bio-chemistry aspects, it becomes easy to elaborate the effect of *Viruddha Ahara*.

Food- Food interaction is a serious issue. The literal meaning of word *Viruddha* is opposite, it sounds that the food combination of certain types of food may have:

- Opposite properties
- Opposite activities on the tissues

- May exert some unwanted effect on the body when processed in a particular form
- May exert undesirable effects, when combined in certain proportion
- May have unwanted effects if consumed at wrong time. ^[5]

It can be observed from the above list that *viruddha Ahara*, can lead to disorders like *Amavata*, *kustha*, *Grahani*, etc. as described by the *Acharya* due to intake of *viruddha Ahara*. That means due to intake of *Viruddha Ahara* more toxins are produced in human body like Autoimmunity system response to the human body. ^[6]

Mode of action of viruddha Ahara:-

Association between dietary pattern and diseases has always been field of interest among the health professionals. Frequent intake of combination of incompatible food leads into production of toxins. Then in the alimentary tract these toxins provoke all doshas and which get mixed with digestive juice and then *Rasa Dhatu* and so on it spread from one *Dhatu* to next *Dhatu*. Thus this *Doshas* spread from *kostha* (gut) to *shakha* (*Dhatu*s and skin). ^[7] While travelling through all over the body. "Where ever there is *khavaigunya* (inherent deformity) it gets lodged and shows the symptoms of the diseases. Effects of the incompatible food can be classified into *Ashukari* (acute) and *Chirakari* (chronic) which may be modified in the form of symptoms or Diseases like autoimmune Disorder. ^[8]

Autoimmunity:

Autoimmune disorder are a spectrum of disease to self-antigen diseases ranging from organ specific, in which antibodies and T cells react to self-antigens localized in the specific tissue, to systemic which are characterized by reactivity against a specific or antigens spread through various tissues in the body. It is the failure of an organism in recognizing its own constituent's parts as known self which allows an immune response against its own cells and tissues. It is often caused by response against its own cells and tissue by a lack of germ development of target body and as such the immune response acts against its own cell and tissue.

Epitope Spreading:-

The diversification of the immune response induced by an antigen to

new T cell and antibody specificities during the course of an autoimmune disease is known as "Epitope spreading".

This broadening of the immune response can target epitopes either within same antigen (intermolecular spreading) or another antigen (intermolecular spreading). Multiple factors are involved in the induction of epitope spreading including the enhanced display of previously cryptic determinants under the local inflammatory cytokine milieu, the release of self-antigens.^[9] Following tissue damage, the difference in the size and avidity in the epitope specific T cell subsets and the role of B-cells as antigen presenting cell. Understanding the phenomenon of epitope spreading is important for fully defining the pathogenesis of autoimmune disease and for developing better immunotherapeutic approaches for these disorders. After introducing the new epitope to the body, TLR(s) starts work in the body which was present before.^[10]

Role of TLR(s) in autoimmunity:-

Toll like receptors (TLRs), part of the innate immune system that recognizes molecular signatures are important in the recognition of pathogenic components. However, when specific cellular contents develop in which TLRs are inappropriately lead to sterile inflammation and results in the occurrence of autoimmunity.^[11]

TLR_s play an important role in both innate and acquired immune responses.^[12,14,15] However, the inappropriate TLR activation triggered by self-components brings about sterile inflammation and autoimmunity. Autoimmunity is the result of several mechanisms that are associated with the presence of auto reactive immune cell subsets and loss of immunological tolerance.^[13] Organ specific autoimmune diseases are the culmination of hereditary and environmental factors related to the failure of adaptive immune response regulation to self-antigens.^[16] In fact, overexpression of PRR_s identified in the tissues of patients with organ-specific autoimmunity, type 1 diabetes (IDDM) and Crohn's disease.^[17,18]

Toll like receptors (TLRs) are just one of several distinct classes of PRRs including Nod-like receptors (NLRs), C-type lectin receptors (CLRs), AIM2-like receptors (ALRs), RIG-I-like receptors (RLRs) and intracellular DNA sensors including cyclic GMP-AMP synthase (cGAS)^[10, 11] which recognize structures as diverse as flagellins, nucleic acids, saccharides, peptidoglycans and lipoproteins. An adaptive immune response is triggered by the recognition of such antigens mediated by pro-inflammatory cytokine production together with antigen presenting cell stimulation.

Autoimmunity and infection have been linked together in several studies due to PAMP_s being found in tissues after episodes of infection.^[19] These are part of a substantial body of experimental data indicating that PRR activation on innate immune cells by either PAMP_s or pathogens has the ability to deregulate self-tolerance and subsequently active auto reactive T-cells and B-cells.

However, TLR_s are also known to recognise host-derived endogenous ligands which have undergone some form of change from their native state of accumulated excessively in nonphysiologic compartments.^[20] The involvement of TLR_s in early immune responses is responsible for their ability to develop auto reactive B-cell and T-cell. There is now a well-established link between a variety of infections and autoimmune diseases, both in animal models and in the clinical setting. Such autoimmune responses are thought to be the result of molecular mimicry of the pathogen-derived antigens to self-antigens or a form of nonspecific activation of the innate immune system (through loss of immunological tolerance) that results in the production of T-cells and antibody responses specific to self-antigens, implicating TLR_s in numerous autoimmune diseases.^[21]

So let's take an example of type-1 Diabetes (IDDM), there damage to pancreatic B-cells due to infections or environmental agents are known to induce type-1 DM. Agents implicated are as follows.

a) Viruses (e.g. Mumps, Rubella, and Coxsackie B4): Three different mechanisms explain the role of viruses including autoimmunity in type-1 DM.

(I) By Stander damage - Viruses induce islet injury leading to release of requested antigens and activation of auto reactive T-cells.

ii) Molecular mimicry - Viruses produce proteins that mimic B-cells

antigens and the immune response to viral proteins cross reacts with the self-tissue.

iii) Theory of predisposing and precipitating viruses - Viral infection early in life persists (predisposing virus) and a subsequence infection with a related virus (precipitating virus) that shares antigenic epitopes leads to an immune response against the infected islet cells.

- b) Toxic chemicals and drugs like alloxan treptozin and pentannidine.
- c) Exposure to cow's milk in infancy.
- d) Cytotoxins.

DISCUSSION:

Viruddha Ahara is the origin of most of the ailments. Regular consumption of incompatible food can lead to inflammation at molecular level. Number of food in incompatible diet are mentioned in old *Ayurveda* literature such as *Charak & Shushrut Samhitas*. These type of food combinations are not used in today's era. From the mechanism of action *Viruddha Ahara*, i.e., *Hetu* is the main etiological factor in genesis and aggravation of all auto-immune disease. Prevention of the cause plays a major role in deciding the line of treatment of the skin disease, cardio-vascular disease, cancer, obesity, diabetes mellitus (DM) and hormonal imbalance patient, sterility, percentage is increased year by year. Contradictory diet should be avoided & people should be aware of this also, understand the benefits, so that best dietary recommendations will reduce the risk of disease and stop the pathogenesis and improve the protective mechanism, immune system, ultimately health. In this article an attempt to discuss the mode of action of *Viruddha Ahara* which creates toxicity in human body with the auto-immune disorder as described in modern texts. Auto-immunity acts similarly to *Viruddha Ahara* by their mode of action. By regular consumption of *Viruddha Ahara* can lead to toxicity in the body which creates many diseases as described in *Samhitas*. In auto-immune system, when the epitope is introduced to the body and once the epitope spreads, the mode of action of TLR_s would accelerate antigen and antibody reaction. After the immune complex is formed by which many autoimmune disorders formed in the human body due to toxicity.

CONCLUSION:

From the above discussion, it is clear that the *Viruddha Ahara* is an important aspect of today's improper dietary habit. Unknowingly this can lead to severe hazardous diseases to the patients, same as in the autoimmune disorders in which when the new epitope is introduced to the body, the mode of action of TLR_s in the human body results in formation of immune complex. Although the *Ayurveda* texts are written thousands of years ago but it proves to be scientific even today. This article is focused on *Viruddha Ahara*, as described in *Samhitas*, which is very scientific to autoimmunity in modern texts.

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