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Analytical study of Rheumatoid Arthritis w.s.r to Ojo-Visramsa as Autoimmunity

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ABSTRACT

Ayurveda, although an ancient science, incorporates all those aspects and facts which have been emerging from various researches in the modern medical science since ages. In recent times, various autoimmune disorders like rheumatoid arthritis, SLE, myositis, muscular dystrophies etc. are getting public attention more than ever. These autoimmune disorders are actually the consequences of the misalignment of immune system towards its own body tissues. Autoimmunity comes under the concept of immunology and in *Ayurveda*, immunology is described as *Vyadhikshamtva* and *Oja Bala*. *Oja*, the quintessence of the seven *Dhatu*s is responsible for providing immunity to the body. Any fluctuations in *Oja* tends to generate disease causing elements in the body. In *Ayurveda* it has been mentioned that *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 function. Comparably, autoimmunity is also the misalignment of the immune system such that the system which should ideally defend the body against the diseases, starts attacking its own body and creates various autoimmune disorders. Hence this article is an attempt to create a novel concept about *Ojo-visramsa* and its relatability with autoimmunity through a pathogenic analysis of rheumatoid arthritis so that it can be more helpful for the physicians to treat these disorders to benefit the society in an efficient way.

Key words: Autoimmunity, Autoimmune disorders, Ojo-Visramsa, Rheumatoid Arthritis.

INTRODUCTION

Rheumatoid arthritis is an autoimmune chronic inflammatory disease characterized by a deviated immune response shown by the body towards its own tissues. Ordinarily the immune system of our body distinguishes between the self and non self antigens and shows its response according to that but due to

some unknown factors and trigger events, derangements in the immune system occurs and instead of targeting the foreign antigens, the immune system fails to distinguish starts attacking its own tissues. This phenomenon is termed as Autoimmunity.^[1] Autoimmunity is present in all the individuals but when it breaks down the immune tolerance, the end result occurs as Autoimmune disorders.^[2] In *Ayurved*, *Maharishi Charaka* has described the concept of *Vyadhikshamatva* which can be correlated with the body's Immunity. *Vyadhikshamatva* is actually the capacity of the body which resists the occurrence of disease and protects the body from innumerable infections.^[3] According to our *Acharyas*, this capacity is imparted to the body by a substance known as *Oja*. *Oja* is the supreme essence of all the *Dhatu*s which provides strength to the body against the diseases.^[6] Just like in modern medical science, immunity is a resistant capacity provided mainly by T cells and B cells and even a slight

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disequilibrium in their functions gives rise to autoimmunity.^[4] Likewise, *Vyadhikshamatva* is the capacity imparted by the *Oja* and vitiation of *Doshas* cause *Vikruti* in *Oja* and manifestations of various symptoms occurs.^[11] Out of the 3 of *Oja* described by Acharyas, it has been found out that *Oja Visramsas* can be best associated with the phenomenon of Autoimmunity in Rheumatoid Arthritis because the manifestations of symptoms mentioned in *Ojo-Visramsas* and Rheumatoid arthritis are very similar.

AIMS AND OBJECTIVES

1. Pathogenic Analytical study of Rheumatoid arthritis as an Autoimmune Disorder.
2. Comparative study of rheumatoid arthritis with the *Lakshanas* of *Ojo-Visramsas* mentioned in ancient Literatures.

MATERIALS AND METHODS

This article has been prepared on the basis of thorough study of the relevant topics from classical literary materials such as *Charak Samhita*, *Sushruta Samhita* with its commentary by *Dalhan*, *Ashtang Sangrah*, *Ashtang Hrudaya* and *Sharangdhara Samhita*. Various textbooks of modern medicine and pathology have been referred to collect materials about rheumatoid arthritis and autoimmune disorders. Relevant articles about *Oja*, *Oja Vikrutis*, *Vyadhikshamatva*, immunology, rheumatoid arthritis and autoimmunity have also been reviewed to efficiently complete this article.

OBSERVATION

Autoimmunity in Rheumatoid arthritis

Autoimmunity is a state of body in which the immune system of the body fails to distinguish between self and non self antigens and reacts by the formation of autoantibodies against one's own tissue antigens.^[5] Autoimmunity is present in all the normal individuals but the T and B lymphocytes that recognise self tissue as antigen (autoreactive) are either eliminated or suppressed by the body's immune tolerance mechanism. Autoimmune diseases occur when these autoreactive T and B cells escape this tolerance

mechanism, gets triggered by various exogenous (microbial) and endogenous (genetic susceptibility) factors and deviates its target from foreign to self antigens. In Rheumatoid arthritis, the chronic inflammation at the synovial lining of joints mainly occurs due to the continuous production of the autoantibodies called the rheumatoid factor by the B cells. Rheumatoid factor is nothing but the formation of IgM antibody against the IgG. Also there takes place an activation of the CD4+ T cells, these cells elaborate cytokines mainly TNF, interferon, IL-1 and IL-6, further activating the endothelial cells, B lymphocytes and macrophages. Activation of macrophages releases more cytokines which damages the joint tissues and vascularisation of cartilage termed as pannus formation.^[14] This pannus formation (inflamed synovium) invades bone and cartilage to cause joint erosion. Activated endothelial cells express adhesion molecules which further stimulates the collection of inflammatory cells and this process goes on damaging the joint. Prostaglandins and nitric oxide produced within the inflamed synovium cause vasodilation, resulting in pain and swelling. The inflamed synovial cells also produces M-CSF and the activated T cells produces RANKL which plays important role in osteoclasts activation causing bony erosions and periarticular osteoporosis. Thus autoimmunity damages the joint and atrophies the muscle adjacent to the inflamed joints leading to biomechanical dysfunction and further amplification of destruction. Rheumatoid nodules in small joints and granulomatous lesions may occur in lungs, pleura, pericardium and sclera as a result of inflammatory process.^[12]

Ojo-Visramsas

In *Ayurveda*, there are 3 types of *Vikruti* mentioned. They are *Oja-Visramsas*, *Oja- Vyapad* and *Oja-Kshaya*.^[8] *Oja Kshaya* is the reduction in the quantity of *Oja*, whereas *Ojo Vyapad* is the vitiation of *Oja* by vitiated *Doshas* and *Dushyas*. *Oja Visramsas* is the displacement of the *Oja* from its normal place.^[9] Or we can say that deviation from its normal function. It can also be defined as the impairment in the distribution of *Oja* all over the body. The normal function of *Oja* is to provide '*Bala*' (strength) and *Vyadhikshmatva* (immunity) to

fight against diseases.^[10] But when there is a displacement of *Oja* from its normal function, it produces following symptoms mentioned as per our *Acharyas*.^[9]

- *Sandhi Vishlesha* meaning the looseness and displacement in the joint or synapse.
- *Gatranam Sadanam* meaning fatigue which may be due to the weakness in the body.
- *Dosha Chyavanam* which means migration of vitiated *Doshas* to other sites.
- *Kriyasannirodhashch* which means the impairment or blockage of the functions of body as well as the mind which ultimately results in the sluggishness of various physical and mental activities.

DISCUSSION

Thorough study of the *Ayurvedic* literatures reveals that *Oja* provides natural defence to the body against various diseases.^[7] Similarly modern medical science holds T cells and B lymphocytes, responsible for the ultimate defence mechanism of the body. Derangements in both the things forms the basis of some abnormalities in the body. For e.g.; any kind of disequilibrium in *Oja* causes *Ojo-Visramsas* manifesting various symptoms whereas disequilibrium in the form of auto activation of immune system (T cells and B cells) results in autoimmune disorders like rheumatoid arthritis. The cardinal symptoms of rheumatoid arthritis can certainly be summed up under the four *Lakshanas* of *Oja Visramsas*. The characteristic feature of rheumatoid arthritis is the inflammation of synovial joints resulting in the destruction of bone and articular cartilages. Initially erosion of bony margin takes place due to osteoclastic activity stimulated by auto activated T cells.^[12] In addition to that persistent inflammatory process causes weakening and rupture of tendons. Due to this, there occurs a looseness or laxity in joints. This can be termed as *Sandhi Vishlesha* in terms of *Ayurveda*.

Prostaglandins and nitric oxide within the inflamed synovium and vasodilation resulting in swelling and pain. Anorexia and weight loss occurs throughout the

disease course. Osteoporosis and muscle wasting occurs as a result of systemic inflammation.^[13] All the above symptoms accounts to the fatigue or *Gatrasadanam* in the *Ayurvedic* terms.

The next symptom of *Ojo-Visramsas* is *Doshachyavanam* which means the migration of vitiated *Doshas* to different other sites. It has been accountable that in rheumatoid arthritis, there is an infiltration of autoactivated T lymphocytes and B cells, plasma cell, dendritic cells and macrophages and various TNFs, ILs in the in the synovium.^[13] These cells can be compared to the *Doshachyavanam*.

The systemic inflammation, anorexia, weight loss, fatigue, subluxation of metatarsophalangeal joints, characteristic rheumatic nodules in the small joints, pain and swelling in the joints causes reduction in the physical and mental activities of the patient.^[14] This is actually *Kriyasannirodha* mentioned as one of the *Lakshanas* of *Ojo-visramsas*.

CONCLUSION

The pathogenic analytical study of the rheumatoid arthritis reveals that there is a deflection of immune response of the body towards its own tissues. That is the reason why rheumatoid arthritis is categorized as an autoimmune disorder. *Oja Visramsas* also means the dislocation or a deflection of *Oja* from its normality. Hence, *Ojo-Visramsas* can be correlated with the autoimmunity. Furthermore, the *Lakshanas* of *Ojo-Visramsas* and rheumatoid arthritis are very much alike. Thus, it can be concluded that the autoimmunity in rheumatoid arthritis can be associated with the principle of *Ojo Visramsas* mentioned in *Ayurveda*.

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