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### RESEARCH ARTICLE

#### UNDERSTANDING OF OJA IN MODERN PERSPECTIVE

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#### Abstract

Oja is a concept in Ayurvedic medicine that refers to the vital energy or essence that is believed to be responsible for the body's strength, immunity, and overall vitality. The integration of the concept of Oja with modern medicine is still being studied, but some researchers believe that it could be useful in understanding the body's immune response and in the development of remedies for conditions related to immunity and vitality. However, more research is needed to fully understand the relationship between Oja and modern concepts and to determine the effectiveness of any potential treatments.

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#### Introduction:-

As it is well known that prevention is always better than cure, there are many concepts related to this particular line in the medical field. In Ayurveda, the concept of Oja supports the same. In modern-day science when there are various concepts about immunity, it is the need of the hour to understand some Ayurvedic context from the modern point of view for easy integration of both sciences. The concept of Oja is very vast and contains whole science in it, so here is a review article for a better understanding of Oja from a modern medicine point of view.

Oja is regarded to be the purest part of the seven Dhatus and is referred to as Bala by Acharya Sushruta, the innate quality that produces resistance against many diseases. Acharya Charaka has mentioned that the kapha in its prakrita avastha (normal state) promotes strength, lubrication, virility, immunity, resistance, and stability in the form of Oja.

#### Materials and methods:-

For this, various literary materials have been screened and studied thoroughly as per the need and various Ayurvedic texts like Charaka Samhita, Sushruta Samhita and Ashtanga Hridaya were considered. Various reference books and peer reviewed articles related to concept of immunity were also reviewed.

#### Review of literature:-

Oja is the fine essence of all the Dhatus and the superfine essence of Shukra dhatu (reproductive tissue) which is responsible for biological strength, vitality and immunity in the body.

#### Place of Oja-

Seat of Oja is Hridaya, from where it circulates in the entire body.

There are two places where Oja prevails-

1. Para Oja - Hridaya Sthana

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2. Aparaj Oja - Sarva Sharira Vyapi (all over the body)

### Types of Oja According to Acharya Chakrapani<sup>1</sup>

1. **Para Oja**- Acharya Charaka mentioned that Hridaya is dwelling place of Para Oja.<sup>2</sup> It is of utmost importance. Its parmana is ashta bindu (eight drops). It is highly pure (without any waste ingredient). This Para Oja is responsible for existence or preservation of life; therefore whenever, there is any decrease or loss of Para Oja it will cause instantaneous death of that person.

2. **Aparaj Oja**- It is also known as **Shleishmika Oja** because its properties are similar to Shleshma (Kapha). Aparaj Oja is present in whole body. According to Acharya Charaka, the quantity of Aparaj Oja in a healthy individual is Ardhanjali.<sup>3</sup>

The seat of Aparaj Oja is the ten vessels connected with Hridaya. Any type of diminution of Aparaj Oja either qualitative or quantitative will result in diminished strength of the body resulting in predisposition of various diseases.

**Qualities of Oja** - Acharya Charaka has explained ten qualities of Oja which are similar to milk and ghee while totally opposite to Madya (Alcohol) and Visha (poison). These ten qualities are-

Guru sheetama mridu shlakshana bahalam madhuram sthiram prasannama pichhiliama sanigdhamojo dashgunam smritam.<sup>4</sup>

According to Acharya Charaka, the color of Oja is predominantly white, slightly reddish or yellow resembling to the Sarpi Varna [Ghee (clarified butter) like appearance]. It is sweet (Madhur) in taste like Madhu (honey) and has the smell of Laja.<sup>5</sup>

### Functions of Oja –<sup>6</sup>

1. Balen (strength bestows)
2. Sthira Upachita Mamsata (stability and growth of muscles)
3. Sarva Cheshta Swapratighatah (ability to perform all activities without any hindrance)
4. Swara Varna Prasado (clarity of voice and brightness of color or complexion) ·
5. Karana Nama Aatma Karya Pratipatti (ability of external and internal sense organs to perform their own functions.)

### Causes of Ojakshaya-

Acharya Charaka has mentioned - Vyayama(exercise), anshana (fasting), chinta (worrying), rukshalapa-pramitashana (dry and limited meals), bhaya(fear), shoka (grief), ruksha-paana (dry, fizzy beverages), prajagara (insomnia) and secretion of kapha, shonita, shukra and mala, kala and bhutoupghata- excess or improper affect of all these is the main causative factor for kshaya.<sup>7</sup> This causes dhatu kshaya leads to Oja-kshaya.

### Stages of Oja Vikriti-

The pathological conditions of Oja diminish vyadhikshamatawa. Acharya Sushruta has described three deranged states of Oja – Ojovisramsas, Ojovyapata and Oja kshaya.

1. Ojovyapata- When vitiated doshas amalgamates with Oja this condition is produced.<sup>8</sup>  
Symptoms - Stiffness and heaviness in body, discolored complexion, drowsiness and somnolence.
2. Ojovisramsas- (Dislodged immunity) When vitiated dosha dislodge Oja from its proper seat, the condition is known as Oja visramsas.  
Symptoms- Looseness of joints, lethargy in body (fatigue), dislodgement of deranged dosha from their natural seats and abolition of functions of body and senses.<sup>9</sup>
3. Ojakshaya – Condition of quantitative as well as qualitative reduction of Oja is known as Ojakshaya.  
Symptoms- Fainting, emaciation of body, bewilderment, delirium, loss of consciousness and ultimately death.<sup>10</sup>

According to Acharya Charaka-

Symptoms of Oja kshaya are- Timidity, Debility, constant worry, discomfort of the senses, loss of luster, neurasthenia, dryness and emaciation.<sup>11</sup>

**Vyadhikshamatwa:**

Acharya Charka has introduced the term vyadhikshamatwa in ayurveda. It means all doshas are neither of equal strength nor all the bodies capable of resisting disease equally.

The definition of Vyadhikshamatwa given by Chakrapani – Vadhikshamatwa denotes the resisting power of the body, which reacts to arrest the progress, occurrence or reoccurrence of diseases. In this definition two significant terms vyadhi-bala-virodhitva and vyadhiutpada pratibandhakatva have been used in a particular order.<sup>12</sup>

- Vyadhi-bala-virodhitva – reducing the strength of diseases those already manifested.
- Vyadhiutpada- pratibandhakatva - prevention of those diseases which are yet to be manifested.

**Immunity-**

Immunity is resistance by host against invasion by any foreign antigen, including microorganisms. The collective and coordinated response of the immune system to the introduction of foreign substance is called the immune response.

**Mechanism of immunity-**

Can be divided into two broad categories-

1. Innate immunity- also known as natural or native immunity, it is intrinsic mechanism that reacts immediately and forms first line of defense. It is present by birth.
2. Adaptive immunity- also called acquired or specific immunity; its mechanisms are stimulated by exposure to microbes and other foreign substances.

**Discussion:-****Relation between Shleishmika Oja and immunity-**

By studying various descriptions about Shleishmika Oja, it is envisaged that body's defence against disease causing factors in term of innate or natural resistance which is known today as non-specific immunity. In classics, there is no reference to specific active immunity conferred by infections and contagious diseases or measures analogous to vaccination or inoculation. Ayurvedic approach to phenomenon of body defence against forces of disease is fundamental. There is power inherited in body which opposes or inhibits the virulence of disease-causing factors - Vyadhibalavirodhitva and Vyadhiutpadanibandhakatva, which is represented as non-specific factor complex of resistance. This factor is innate or inborn.

**Factors of natural resistance-****The properdin system-**

The properdin system is a part of the body's innate immune system, which is responsible for protecting the body against infection and disease. The properdin system is a cascade of proteins that work together to help the body identify and neutralize pathogens, such as bacteria and viruses.

One of the key components of the properdin system is the protein properdin. Properdin is a small protein that is produced by the body in response to an infection. Once produced, properdin binds to the surface of pathogens and helps to recruit other complement proteins to the site of infection. Properdin also plays a key role in the alternative pathway of complement activation. In this pathway, properdin binds to C3b, a protein that is produced when the complement system is activated. This binding helps to amplify the complement response, which is important for neutralizing pathogens.

Properdin is plasma glycoprotein that activates the complement system of innate immune system. Properdin together with complement and  $Mg^{2+}$  participated in different activities like destruction of bacteria, protozoa, abnormal types of erythrocytes and inactivates certain viruses. Properdin is a normal constituent of blood serum and it differs from antibodies, as it lacks the specificity. Properdin is present in normal serum whereas antibodies appear in response to antigenic stimulus.

Essential elements of the properdin system include- 1. Properdin 2. Complement 3. Positive magnesium ions.

In essence, the various activities of the properdin system concerned with resistance against infectious diseases do not appear to depend upon antibody and operates in system that do not require the complement with its four components for activities.

Ayurvedic concept of bala or vyadhikshamatwa in its different aspects can relate conceptually with natural resistance. Ayurvedic concept of Shleishmika Oja resembles with serum properdin in various aspects like physical properties. These properties are briefly summarized below<sup>13</sup>

1. Physical properties of Shleishmika Oja and properdin-

S.no.	Shleishmika Oja	Properdin
1.	Sthira (stable)	Stable protein with large molecular weight
2.	Mritsna (slimy)	Colloidal and slimy
3.	Snighdha (viscous)	Euglobulin which contains over 77% of lipid.
4.	Resembles ghee in appearance i.e., whitish and yellowish red	Whitish and tends to appear slightly yellow and red due to presence of carotenoids in it
5.	Madhur like honey	Contains sugar

2. Like properdin, shleishmika Oja transports via arterial system i.e., via rasa and rakta (blood and plasma), so it is an invariable constituent of rasa and rakta.
3. Shleishmika Oja is a final product (formed substance) and doesn't undergo any transformation, this resembles with serum properdin.
4. Like properdin, it provides protection to body against disease and degeneration.
5. Impairment of shleishmika Oja lead to lowering of innate resistance against various diseases – aupsargika or sankramika (infectious) and non-infectious e.g., sannipataja jawara, pandu, madhumeha etc. Similar is the case with properdin levels in toxic and infectious diseases mentioned above and also in cancer.

Diminished level of Aparaj Oja in body makes person prone to many opportunistic infections and vice-versa. Many chronic long standing diseases like AIDS, Diabetes Mellitus, Tuberculosis, Cancer etc; leads to cachexia and ultimately Oja Kshaya and death.

### Conclusion:-

Concept of Oja and its understanding in terms of modern science is still unclear and difficult to establish. The exact concept cannot be related but there are few points which go in favour of relation of the properdin system and Oja. There are similarities in their physical and chemical properties. Also, both form a complex and highly coordinated defence system that helps to keep body safe. Dysfunction of Oja or properdin leads to a range of auto immune diseases, as well as susceptibility to infection. Preservation of quality of Oja is very important. Rasayana therapy is seen to be most effective. There are many herbs like Ashwagandha, Haridra, Guduchi, Amalaki etc and some dietary items like ghee and milk (properties of Ksheer and Oja are almost similar) can be added to lifestyle. In conclusion, shleishmika Oja provides an insight into the non specific immunity in ayurveda, which is body's innate resistance against various factors.

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