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A CRITICAL ANALYSIS ON *OJAS AND BALA*: A VITAL NECTAR OF LIFE: IT'S CLINICAL SIGNIFICANCE AND MODERN ASPECTS

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ABSTRACT

Ayurveda is an integral system of natural health care. The main aim of Ayurveda is to maintain the health of healthy individuals and to treat and prevent illness in those who are sick, "Swasthasya Swasthya Rakshanam Aturasya Vikara Prashaman". Ojas is the element in the body which gives power, vigour, vitality, improves immunity power and take care of wellbeing of body. Ojas is considered as essence of all sapta dhatus, which nourishes all tissue and is responsible for the optimal functioning of our body ,mind and spirit .It is the final byproduct of perfect digestion and metabolism, signifying optimal health and wellness .Ojas is placed in Hridaya and penetrates the whole body ,controlling its functioning .By its loss or destruction ,the destruction of the body (life) is sure to happen and by its presence ,the body is sure to survive. The main function of Ojas is Vyadhiskshamatva (Immunity). Immunity is defined as the capacity of the body to resist the pathogenic agents. Bala in ayurveda

physiology is a multidimensional factor that refers to physical and psychological strength and the ability produced in response to antigen exposure and resistance against the manifestation of disease. It has also been synonymously used for components providing strength, nourishment and stability to the body such as *Oja*, *Vyadhikshamatva*, *Balya* and *Prakrita shleshma*. There are some physical components like Immunity, Endoplasmic Reticulum and Neuropeptides which have similarity with *Ojas* on many aspects. Here, is an attempt to conduct a critical analysis of *Ojas*, *Vyadhikshamatva* with regard to ayurvedic component and to establish how it relates to Immunity, Neuropeptides and Endoplasmic Reticulum of modern science. This will be helpful in fulfilling both the aims of ayurvedic science and in seeking solutions of immunological disorders through *Ayurveda*.

KEYWORDS: Ayurveda, Ojas, Bala, Vyadhikshamatva, Immunity.

INTRODUCTION: *Ayurveda* is considered as one of the oldest traditional systems of medicine accepted worldwide. In *Ayurveda*, an individual is said to be healthy when there is state of balance in dosha, dhatu and *mala*^[1] along with total well-being of soul, sensory organs and mind. Beyond this dosha, dhatu and mala, there is one separate entity due to which every tissue of the body integrity in functions, structure for strength and vitality of human body is called as *Ojas*. *Ojas* gets first formed in the body of living beings, the color of *Ojas* is predominately white, slightly reddish or yellow resembling to the sarpi varna, sweet in taste like madhu and has the smell of laja.

"Prathamam jayate hyojah sarire smincharirinam Sarpivarna Madhurasam lajagandhi Prajayate."[2]

Ojas denotes 'vigour' in the sense of physical well-being and energy. [3] The qualitative Ojas initiate the contentment, nourishment of the body and increase strength in terms of physical, mental, immunological of the body. In Ayurveda, Bala, Ojas and Kapha have also mentioned as synonyms. Acharya Charak includes Ojas in Dash Pranayatana. [4] According to Acharya Dalhana, a renowed Sushruta Samhita Commentator, as Ghrita is present in milk and can be retrieved with the right processing. Similarly Ojas is present in every tissue of the body in dormant form 5 and it manifests as superlative quality after proper metabolism. [5] In a nutshell, we can state that the efficient digestion and metabolism of food with good nutritional value is necessary for Ojas maintenance. The Ojas provides Vyadhikshamatva

power in the body. All the body's physiological functions and immune power are controlled or regulated by it. The disease such as Diabetes, Pandu, Tuberculosis, AIDS, degenerative diseases or recurrent infections ...manifest feature of decrease immunity or rather ojakshaya. *Ojas* is the cause and *Bala* is an *Ojas* function. *Bala* plays a key role in diagnosis and treatment of diseases in Ayurveda. The Rasayanas and other Ayurvedic drugs and treatment methods strengthen *Ojas* and promote natural resistance against ageing and diseases. The origin of diseases depends on specific characteristics of Nidana (cause), *Dosha(vata,pitta,kapha)* and *Dushya (Rasa...)* which lead to- *VikaraVighata Bhava* (absence of disease manifestation) and *VikaraVighata Abhava* (presence of disease manifestation) [6]. *Ojas* is considered as resistance to decay and degeneration of body and immunity against the disease.

AIM AND OBJECTIVE

- 1) To study the fundamental concept of *Ojas* and *Bala*.
- 2) To study *Ojakshaya* in etiopathogenesis of diseases.
- 3) To review the correlation of *Ojas, Bala* with respect to modern science.

MATERIAL AND METHOD

- 1) Ayurvedic samhitas- *Charak Samhita, Sushruta Samhita, Ashtang Hridya, Bhel Samhita* and their commentaries.
- 2) Journals, Articles, Research papers.
- 3) K.Sembulingam. Essentials of medical physiology.

REVIEW OF LITERATURE

FORMATION OF *OJAS* – *Ojas* is the essence of *Shukra* and *Artava* which is called as *Garbha rasa*. Garbha rasa nourishes the embryo. When cardiogenesis occurs in the foetus, the *Ojas* which is nourishing the Garbha enters the heart and the cardiac activity begins.^[7] As thousands of bees collect the nectar of fruits and flowers for formation of honey. Similarly, the essence of all dhatus comprises *Ojas*, it is the end product of various physiological processes.^[8] The extract (quintessence) of Sapta *Dhatus* (seven bodily tissues as from rasa to *shukra Dhatu*) is called *Ojas* and hence it is the seat for biological strength, hence called *Bala*.

"Tatra Rasadinam Sukrantanam dhatunam yattparam tejastata khalvOjasstadeva balamityuchyate,Svashastrasiddhantat." [9]

NOURISHMENT OF *OJAS*: After proper digestion of food, prasada(essence) and the kitta (waste) portion is formed. The *Prasada Bhag* provides nutrition to *Ojas* along with all the *Dhatus*. [10]

Types and dwelling place of *Ojas*

According to *Acharya Chakrapani*, the *Ojas* is of two types- Para *Ojas* and Apara *Ojas*.

- 1) *Para Ojas*: Acharaya Charak mentioned that Hridya(heart) is dwelling place of Para *Ojas*. It is the principle *Ojas*.^[11] Its parinama is Ashta bindu(eight drops). This Para *Ojas* is responsible for continuation of life, therefore whenever there is any decrease or loss in the volume of Para *Ojas*, it will give rise to grave's diseases and instantaneous death of that person.^[12] Therefore the protection of Para *Ojas* is the main aim of yogic practices.
- 2) Apara Ojas: Apara Ojas is also known as Shleshmika Ojas because its properties are similar to Shleshma(kapha). Its parinama is Ardhanjali.^[13] According to Acharya Chakrapani 'Sarva Sharira Vyapi' it is present all over the body. Ten great blood vessels connected to heart carry the Ojas and pulsate all over the body.^[14] Any diminution in the volume of Apara Ojas will result in the absence of strength of the body and causes of various diseases.

Acharya Bhel has described the twelve sites of Ojas in the body i.e Rasa, Majja, Asthi, Meda, Mamsa, Shonit, Purish, Mutra, Shleshma, Pitta, Swed, Shukra.^[15]

Cardinal signs of *Ojas* as par their location [16]

- *Hridyastha Ojas Ojas* which resides in the heart is predominantly *Raktamishatspitkam* (yellowish reddish in colour)
- Garbsthaj Ojas -Sarpi Varnam (Appearance of Ojas is like ghee), Madhu Rasam (taste is like honey), Lajja Gandhi (smell is like laja).

Opinions about Ojas by different Acharyas -

Ashtang Sangrah – Sara of Sukra dhatu

Ashtang Hridya -Mala of Sukra.

Sarangdhar Samhita, Bhel Samhita, Bhav Prakash – updhatu of Sukra.

Dalhan - Sneha of Sukra

Qualities of Ojas mentioned in Brihatrayi

Sr. NO	Charak ^[17]	Sushruta [18]	Ashtang Hridyam [19]
1	Guru (heavy)	Somatamakam (watery nature)	Snigdham (unctuousness)
2	Sheet (cold)	Snigdham (unctuousness) Somatamakam (water nature)	
3	Mridu (softness)	Shukla (pure white) Ishat lohita pitakam (reddish yellow)	
4	Shlakshan (smoothness)	Sheet (cold)	
5	Bahalam (density)	Sthir (stable)	
6	Madhur (sweet)	Saram (fluidity)	
7	Sthiram (stable)	Viviktam (clear)	
8	Prasanam (clearness)	Mridu (softness)	
9	Pichilam (slimy)	Mritsanam (delicate)	
10	Snigdha (unctuousness)	Pranayatanam-uttamam (excellent seat of life forces)	

Functions of *Ojas*

Ojas is highly useful in maintaining a state of excellent health. It nourishes all the parts of the body including mind. According to *Ayurveda*, life is impossible without *Ojas* in the body.

"Tatra balen sthir upchit Mansta Sarvcheshta Svaprtighate SavarVarnPrasado Bhayanam Abhyantranama ch Karnanamat karya Pratipattir bhavati". [20]

- BalenSthir Upchit Mansta -Enhances the stability and growth of muscle.
- *Sarvchesta Svapritighata* Ability to perform all activities without any hindrance.
- Savarvarn prasado -Clarity of voice and brightness of colour.
- Bhayanam Abhyantranam Karnamakarya pratipati Normal functioning of external (motor) and internal (sensory) organs.

Abnormalities of *Ojas*

"Tasya visransa vyapat kshaya iti lingani vyapanarasya bhavanti".[21]

Ojas Visransa, *oja vyapada* and *oja kshaya* are the three stages of *oja vikriti* which may occur in various conditions and diseases (mild and severe types). According to ancient ayurvedic view, these conditions may arise as a result of metabolic abnormalities leading to diminished production of *Ojas*. These stages are as follows-

- 1. Symptoms of *Ojas Visransa* (first stage)
- *Sandhi Vishlesh* (looseness of joints).
- *Gatra Sada* (weakness of the body)
- *Dosha Chyavanam* (Tridosha move away from their normal seats)
- *Kriya Sannirodha* (inability to perform normal function)
- 2. Symptoms of *Ojas Vyapad* (second stage)
- Stabha Gurugatrata (stiffness and feeling of heaviness in the body).
- *Vata Shopha* (swelling caused by vata dosha impairement).
- *Varna Bheda* (change in complexion)
- *Glani* (exhaustion).
- *Tandra*(drowsiness)
- Nidra(sleep)
- 3. Symptoms of *Ojas Kshaya* (third stage)
- a) According to Sushruta Samhita
- *Murchha* (unconsciousness)
- *Mansakshaay* (muscle weakness)
- *Moha* (mental disturbances specially in judgement)
- *Pralap* (delirium)
- Mrityu(death).
- b) According to *Charak Samhita*
- *Bibheti* (person suffer from fear complex)
- Durbalo abhikshanam (physical and mental debility)
- *Dhyayat*i (worries always without apparent reason)
- *Vyathita Indriya* (feels discomfort in sense organs).
- *Duschhaya*(loss of complexion of body)
- *Durmana*(feeble mental stamina)
- Ruksha (dryness)
- Shyama (skin becomes black)
- Kashya (emaciation of body) [22]

OJAS AND BALA: A VITAL NECTAR OF LIFE: IT'S CLINICAL SIGNIFICANCE AND MODERN ASPECTS

Factors responsible for reduction of Ojas -

Various causes which are responsible for the decrease of *Ojas* have been mentioned in the text of *Ayurveda*. They are as follows –

- *Ativyayama* (excessive physical exercise) [23]
- *Anshana* (fasting for long period)
- *Chinta* (constant worry)
- Consumption of foods which are dry in nature
- *Pramitashana (consuming very less quantity of food)*
- Vata atapa Sevan (excessive exposure to wind and sun)
- Bhaya (fear)
- *Shoka* (grief and sorrow)
- Rukshapaan (drinking strong wines)
- Prajagar (keeping awake at nights)
- Excessive elimination of Kapha, Shonita(blood), Shukra (semen) and Mala (urine and faces)
- Kala (due to old age)
- Abhighata(mental and physical trauma) [24]
- Kopa(anger)
- Anger, hunger, constant worry and excessive exercise. [25]

Ojakshaya and pathogenesis of various diseases -

Ojas is the Bala of body and responsible for *vyadhikshmatva.Ojas* is the cause and *bala* is its effect. *Ojas* is an important element when it is vitiated, it develops many pathological conditions like-

- i. *Pandu* The person in whom the pitta -dominant *vataadi doshas* become aggravated in the *Raktaadi Dhatus*, their dhatus become loose and heavy. Due to vitiation of doshas and impurities in the body, the qualities like strength,complexion,oiliness and *Ojas* become extremely diminished. There is a deficiency of blood and fat, weakness of *Ojas* and the body's complexion becomes distorted. ^[26]
- ii.Rajyakshma Due to irregular consumption of food, the Agnis (digestive fire) become imbalanced which leads to improper digestion of food and *Dhatus*, obstruction of blood vessels and other channels (*srotas*) by vitiated *vata*, *pitta* and *Kapha doshas*. Improper digestion of food, especially leads to the formation of excess kapha from the food essence. The increased *Kapha* obstructs the channels (*srotas*), causes depletion of blood and other tissues and destroys the seven tissue fires residing in the tissues. This leads to the origin of

Rajayakshma disease. The digested food mostly turns into waste (mala) and only small part of it becomes *Ojas* (vital essence). This mala should be especially protected because it provides Bala (strength) to the patients.

"Sarvadhatu kshayaartasya Balam Tasya Hi Vidbalam" [27].

iii. *Madhumeha or Ojomeha* – Excessive intake of heavy and unctuous substances, sour and salty tastes, intake of new grains and beverages, excessive sleep, lack of exercise, absence of worry or anxiety, not undergoing any purification therapies like emesis and purgation. Due to all these reasons, kapha,pitta,meda and Mamsa increase excessively in the body. When the obstructed vayu, gets aggravated by their increase, enters the urinary bladder carrying *Ojas*,it results in the painful manifestation of Madhumeha (vataj Prameha). It is one of the types of Prameha,where the *ojas* is excreted in urine, which is sweet in nature and ants get attracted to the urine of the patient. Nowdays, this is called glucose. [28]

Management of *Ojas* **Kshaya** – *Ojas* is the pure and subtle substance that is extracted from food which has been completely digested, plays a significant role in the maintenance of healthy life.

- According to *Dalhana Rasayan Chikitsa* (rejuvenating treatment) and *Vajikarana Chikitsa* (aphrodisiac treatment) should be used.
- According to *Kashayapa* -Substances that are Madhura, snigdha ,sheeta and light, used to increase qualities of *Ojas*.
- Jeevaniya Aushada, Milk and Rasa are the medicines for Oja kshaya.[29]
- One should especially abandon the causes that distress the mind. Follow a diet and lifestyle that is beneficial for the heart, beneficial for pleasing *srotas* and supportive of their functions.^[30]
- According to *Acharya Susruta*, debilitated patient desires certain foods, the availability of those specific types of food leads to the elimination of their emaciation. [31]

MEANING AND ASPECTS OF BALA

According to Acharya Charak, Prakrita kapha is termed as *Bala*, the same again has been termed as *Ojas* which is the saara of the body (ultimate product of digestion and nectar of all *dhatus*). When there is *vikriti* in the same it is termed as *Mala* or *Papma*. This indicates the *dushti* of *kapha dosha* results in the accumulation of toxins in the body and decreased immune function as the malinikarana of dhatus occur.

"Prakritastu Balam Shleshma Vikrito Malah Uchyate Sa chaivojah Smritah Kaye" [32]

Bala is considered as seat of Aarogaya or state of being disease free. Various aspects like Dosha, Agni, *Ahara* are important in maintenance of Bala and Immunity. Daurbalya or lack of Bala is lakshana of Oja kshaya. Similar;y Udana Vayu is termed as Bala. Important karma of Udana is Bala.

"Udana Smsritam Balam." [33]

Type of Bala	Explanation as per Ayurveda			Correlation with Conventional Medical Science	
Sahaja (It is natural strength of body.It develops at the time of origin of body from	Uttama Madhyama Heena	Kapha Prakri Mamsa, Majja Shukra Sarat Sattva Sarata Guru Vyadhit Pitta Prakriti Rakta Sarata	a Dhatu a a a.	 Can be compared to Innate Immunity. Neutrophils,macrophages,monocytes,dendritic cells, NK cells, Enzymes in digestive juices Lysozymes in Saliva, complement proteins act as the first line of defence against pathogens [34] Genes play an important role in maintainin Immunity. Immunoglobin transferred through 	
mother's artava and father's shukra.)	Поста	Vata Prakriti Laghu Vyadhita		placenta (IgG) and breast milk (IgA) from mother to Neonate.	
<i>Kalaja</i> (It depends	e differing e as per e seasons or	Uttama	Hemanta Shishira	 Seasonal or chronological immunity. Bala is dissipated and lowest in summer solstice and conserved and highest during winter solstice. Researchers prove that Physiological ageing is accompanied by decline in immune system function. [35] Elderly are reportedly more prone to various chronic and infectious disease as compared with youth. 	
on the factors like		Madhyama	Vasanta Sharada		
person's age and seasonal		Неепа	Grishma Varsha		
variation)	Vayatah Bala (reference to Age groups)	Uttama	Youvana (30-60 Years)		
		Madhyama Heena	Balya Avastha Vruddha (Over 60		
Yuktikruta (It depends on Aahara, Vihara and Aushadha Sevana done	Aahara(Diet	years) Consumer of all six tastes follower of Astaahara vidhiveshyatam Ghrita Sevana Dughda Sevana Abhyanga Vyayama Balya Aushadhi like Bala, Atibala, Ashwagandha, Sthira, Rohini		 Acquired or Adaptive immunity or specific immunity. Proper diet, physical activities, antioxidants, proper intake of carbohydrate and protein, vitamin D (sunlight) are important in a healthy lifestyle with potential benefits to immunity. Rasayana (rejuvenating) and Vajikarana enhance the strength of an individual. 	
by the Individual)	Vihara (Lifestyle) Aushadha Sevana (Medication)				

Assessment of *Bala* of a person has a great therapeutic importance as it is core factor to decide the dose of drug, severity of diseases and line of treatment.

VYADHIKSHAMATVA

Ojas is the Bala of body and responsible for *vyadhikshmatava*. Capacity or power of body to fight against disease and to resist against production of disease is known as *Vyadhikshamatva*. The *Ojas* provides *vyadhikshamatva* power in the body because function of oja is to prevent manifestation of disease in the body and oppose and defense from the disease which already exist.

"Na Cha Sarvani Sarirani Vyadhiksamatve Samarthani bhavanti" [36]

Types of *Vyadhikshamatva* – *Acharya Chakrapani* has mentioned two types of Vyadhikshamatva which can also be generated through artificial means-

- 1) *Vyadhibalavirodhitwam* (serum) It is developed by injecting previously prepared antibodies using serum from humans or animals, particularly horses. Serum containing the antibody(antiserum) is administered to people who have developed the disease. It is also used as a prophylactic measure.
- 2) *Vyadhi Utpadak Nibandhakatva* It is developed by the administration of vaccines or toxoids to defend against disease -causing pathogens or organisms.

This both can be compared to artificial Immunization i.e Passive and Active Artificial Immunization respectively.

ACCORDING TO MODERN SCIENCE-

Immunity and *Oja* - In *Ayurveda*, *Vyadhikshamatva* is defined as condition of equilibrium of *Ojas*, Bala and Prakriti Kapha. *Ojas* is final and excellent product of dhatus and *Vyadhikshamatva* depends on it. Vyadhikshamatva (oja) means strength of body, contributes to illness prevention and health maintenance by increasing the body's resistance capability. **Immunity** is defined as the capacity of body to resist pathogenic agents. It is the ability of body to resist entry of different types of foreign bodies like bacteria, virus, toxic substances etc.^[37] Therefore, the ayurvedic concept of *Vyadhikshmatava* and *Ojas* correlates with various aspects of immunology and can be used to understand the body's immune response to diseases.

Oja and Neuropeptides -There is a correlation between *Ojas* that maintains the equilibrium of Vata-pitta- kapha and neuropeptides which play a wide role in various physiological processes like sleep-wake cycles, pain perception, act as neurotransmitter, neuromodulators and emotional processing. Therefore, as complete physiology is dependent on neuropeptides they can be taken as the basis of life just like *Ojas*. ANP and BNP are cardiac neuropeptides which released from atria and ventricles respectively and regulate BP, blood volume etc in fetus. Due to their diuretic, natriuretic and vasodilation, they protect the heart from congestive heart failure. Thus, it is really important for heart, similar to par ojus. [38]

Oja and Endoplasmic Reticulum – They both have functional similarities and ER stress can serve as a pathological marker for *Ojo dushti*. The Endoplasmic reticulum (ER) plays a significant role in cellular ageing .As cells age , the ER'S ability to maintain protein homeostasis declines, leading to ER stress and potentially contributing to age -related disease. *Vayasthapana Mahakashaya, Rasayan* drugs *Jeevaniya Aushadh* are concerned with the correction of early aging of cells due to its antioxidant properties. These drugs can be examined to assess their function in reducing ER stress and proving the *Ojas* kara activity. Therefore, identifying drugs that alleviate ER stress may have a beneficial effect on Oja dysfunction, and assessing the relationship between Oja and ER stress can aid in the development of therapeutic approaches to manage *Ojas* dysfunction. [39]

DISCUSSION

Ojas is the Bala of Body and responsible for Vyadhishmatva. Ojas is the cause and Bala is its effect. It is Sarabhaga (ultimate essence) of all the dhatus. If we desire perfect health, it is crucial to eliminate the ama stored in our body and focus on producing Ojas, which is essential life energy. Ojas is considered the most refined result of digestion, metabolism, absorption and assimilation. Aahar is responsible for the strength, complexion and Ojas substance in human being. [40] Ojokshaya is constant feature in conditions like Diabetes Mellitus and other degenerative diseases. In current scenario, it is the high time to evaluate the detailed concept of Ojas for study of specific diseases in which Ojas is involved, effect of managing and treatment of diseases and ways to increase ojas. For understanding diseases and intricate pathology, relation between Karya and Karanarupi disease and to prevent disease and understanding of Ojas play a vital role. Integrating the Ayurvedic concept of Ojas with modern medical practices can provide a robust framework for enhancing immune health and maintaining overall health, ensuring a resilent and vibrant life. Both

160

systems emphasize the importance of balanced nutrition, regular physical activity, adequate sleep and stress management for maintaining vitality and immunity. Our physical, mental and spiritual strength is totally dependent on *Ojas*. Ojas can also be considered as living radiant energy present in human body.

CONCLUSION

Ojas is the final and excellence product of all body tissues(dhatus), which gives strength to the body, improves immunity power and take care of well-being of the body. It's considered a subtle substance embodying vital energy and vitality. Production of excellence of Dhatu depends on Hita and Ahita Ahara and Agni. Vyadhikshamatva ultimately depends on the status of Ojas. Similarly, the concept of Bala is important in understanding the physiology of health and pathology of diseases. Rasayan remedy helps to yield excellence Dhatu and nourishes ojas. Ojas is the sap of entire physiology and sustains the life of an individual. Therefore, Ojas is considered as vital nectar of life.

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161

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162

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