

IMPORTANCE OF RASAYANA THERAPY IN THE MANAGEMENT OF AIDS

^{1*}Dr. Sahana Krishna and ²Dr. C. V. Rajashekhar

¹2nd Year PG Scholar, Dept of Kayachikitsa, Sri Kalabyraveswara Swamy Ayurvedic Medical College and Research Centre, Bangalore.

²Professor and HOD, Dept of Kayachikitsa, Sri Kalabyraveswara Swamy Ayurvedic Medical College and Research Centre, Bangalore.

*Corresponding Author: Dr. Sahana Krishna

²2nd Year PG Scholar, Dept of Kayachikitsa, Sri Kalabyraveswara Swamy Ayurvedic Medical College and Research Centre, Bangalore.

Article Received on 08/06/2021

Article Revised on 29/06/2021

Article Accepted on 18/07/2021

ABSTRACT

Acquired immune deficiency syndrome (AIDS) is caused by Human immunodeficiency virus (HIV) which is a lentivirus of the family Retroviridae. AIDS is a spreading global epidemic with no effective cure. Due to the immune derangement characterized by opportunistic infection and certain unusual malignancies. According to NACO the prevalence rate of HIV is 0.22% in 2019 in the same year HIV prevalence among adult males was 0.24% and among adult females was 0.20%. The treatment modalities which is adopted to treat the HIV patient till today is best at delaying the development of AIDS for sometime and prolong the period to either no symptoms or mild symptoms between diagnosis of AIDS and death. Here apart from specific antiretroviral therapy and therapeutic management of opportunistic infections, to prevent immune system abnormality along with the reconstitution of immune function and prevention of HIV infection are most important one which can help AIDS patient to improve lifestyle and longevity. HIV infection affects multisystem chiefly the immune system which can be co-related to *ojokshaya*. The *Rasayana* therapy is considered as the front line of therapy adopted to treat the disorders of *ojas*, which not only includes diet and drugs regimens but also behavioral modalities which can be beneficial for the management of the same in greater extent.

KEYWORDS: AIDS, HIV, *Rasayana* therapy, *ojokshaya*, opportunistic infections, Management.

INTRODUCTION

HIV is a complex retrovirus. Infection with HIV leading to AIDS has been one of the greatest biomedical challenge of this century. The hallmark of AIDS pathogenesis is a progressive qualitative and quantitative depletion of CD4+ T-cell populations in a setting of polyclonal immune activation.^[1] This leads to a progressive impairment of cellular immune function which results an increased susceptibility to a wide variety of opportunistic infections and also certain unusual malignancies. According to NACO the prevalence rate of HIV is 0.22% in 2019 in the same year HIV prevalence among adult males was 0.24% and among adult females was 0.20%.^[2] The management of this disease contains specific antiretroviral therapy and therapeutic management of opportunistic infections, to prevent immune system abnormality along with the reconstitution of immune function and prevention of HIV infection are most important one which can help AIDS patient to improve lifestyle and longevity. Majority of the times combinational therapy i.e in combination of 3-4 drugs replaced single drug approach, when the drug fails,

or if there is poor compliance due to cost factor, there will be multidrug resistance. For the process of rejuvenation in *Ayurveda* unique therapy is described called as *rasayana* therapy. The drugs which are described under this therapy will act on *agni*, *saptadhatu* and *strotas* level and also help in the formation of *prashastha* dhatu for maintaining the perfect equilibrium of all the *doshas* and *dhatu*s. This *Rasayana* therapy not only includes diet and drugs regimens but also behavioral modalities which can help in this condition to a greater extent.

The word *Rasa* refers to nutrient *rasa* and *ayana* word emphasizes the proper supply as well as matched draining jointly the word *Rasayana* known as circulation or transportation of *rasa* in the body to nourish the *dhatu*s. The one which delays the ageing process, increases the longevity and increases the mental as well as physical strength and which destroy the disease process is consider as *rasayana*. The process covers the nutrient fraction and its subsequent metabolic transformation and transportation under the influence of all the 13 varieties of *agni* i.e *jataragni*, *bhutagni* and

dhatwagni of the body in the formation of *ojas* which represents the vitality, vigor and have a capacity to resist the disease. This *Rasayana* therapy is useful to nourish the *saptadhatu* to increase the quality and quantity of *ojas* intern it can be useful to increase the quality of life in the patient and counter the recurrent resistance to ART medicine.

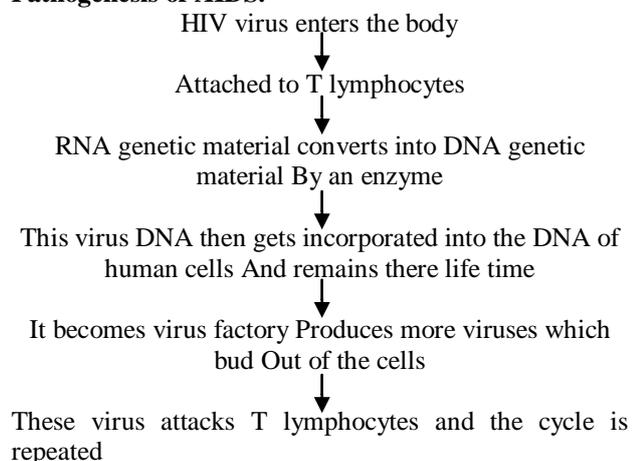
What is AIDS?

Acquired immune deficiency syndrome is caused by human immune deficiency virus which results from the breakdown of the immune system, which results in the body failing prey to the host of infections and diseases. The end stage of the HIV infection is AIDS, this is the stage where the HIV positive persons start showing distinct symptoms of the disease and they are more prone for opportunistic infections and malignancies.

Transmission of AIDS^[3]

1. Unprotected sexual exposure (homosexual/heterosexual).
2. Unsafe Blood transfusions.
3. Use of contaminated needles and syringes.
4. From Infected mother to her child during pregnancy, labor or breastfeeding.

Pathogenesis of AIDS.



Over a period of Years the T cells get destroyed and their number drops to major level which will ultimately result in AIDS.

The HIV attacks the immune system which leads to decrease in CD4+ counts which are the central to the cell mediated response. HIV infection predisposes the infected individual to many opportunistic infections, neurological disorder, neoplasia and ultimately death.

Laboratory Diagnosis of HIV infection^[4]

As antibodies to HIV are far easier to detect than the virus itself. Their presence or absence in blood stream is the basis for the most widely used test of HIV infection. At present, to ensure the accuracy two different tests are commonly applied.

- a) ELISA (Enzyme linked immunosorbent assay): a sensitive test used to detect HIV antibodies.
- b) Western blot : confirmatory test is used to weed out any false positive results . This is highly specific test which is based on detecting specific antibody to viral core protein [P24] and envelop glycoprotein [gp41]. This is more difficult test to perform and requires trained and experienced laboratory workers to interpret the test.

MANAGEMENT

The current global recommendation is to treat all patients living with HIV regardless of CD4 count or clinical stage for all age groups and all population, this includes pregnant women irrespective of duration of pregnancy.^[5]

The objectives of therapy includes.

- Control of HIV replication by specific antiretroviral therapy.
- Control of AIDS related opportunistic infections and malignancies.
- Boosting the host's immune response to HIV.
- Restoration of immune function by stimulating cellular constituents.
- Prevention of HIV infection.

Understanding AIDS in Ayurveda

AIDS is a disorder of immune system so Knowing about immunity in *Ayurveda* becomes important before understanding AIDS. *Ojas* is consider as the *teja* i.e *sara* of all the *saptadhatu* which is responsible for promoting stability and strength to organs of the body.^[6] There are two types of *ojas*- *para* and *apara*^[7], *Para ojas* is situated in *Hridaya* which is *8bindu pramana* and *Apara ojas* is *ardanjali pramana* situated in *hridaya* and the ten *dhamanis* emanating from *hridaya* this *ojas* is also considered as *shlaishmika ojas* . Acharya *dalhana* has considered the term *bala* to signify *ojas* and stated that *bala* is the power of the body sufficient to resist disease.^[8] The *bala* is catagorised into 3 types I.e *sahaja* (natural), *Kalaja* (temporal based on seasonal and age factors) and *yuktikruta* (aquired). In modern parlance *sahaja bala* can be consider as innate immunity, *yuktikruta bala* as acquired immunity. This *bala* can be considered under one roof i.e *vyadhikshamatva* or immunity. *vyadhikshamatva* can be interpreted as *vyadhi bala viroditwam* (antagonistic action against the disease) and *vyadhiutpadaka vibhandakatvam* (the capacity to resist or overcome the disease).^[9]

Acharya *sushruta* explains 3 types of derangement for *ojas* they are *ojovisramsa* (displacement), *ojovyapath* (impaired *ojas*), *ojokshaya* (loss of *ojas*).^[10]

Ojovisramsa is considered as displacement of *ojas* which is characterized by slackened joints, emaciation with myalgia and fatigability of parts, displacement of *doshas* from their *swasthana* to other place, impaired functioning of the body, speech and mind (*kaya-vachamanasa*). In *ojovyapath* there will be modification in the

natural properties of *ojas* under the influence of vitiated dosha which is characterized by rigidity, heaviness, *vata*shophya, change in complexion, mental exhaustion, drowsiness and sleep. Here AIDS and its opportunistic infections can be co-related to *ojokshaya* where there will be loss of normal quantity of *ojas* with changes in its quality and function, which is characterized by loss of consciousness, fatigue, emaciation, confusion, delirium and ultimately death. Retrospectively we can understand the presence of *ojovisramsya* and *ojovyapath* in the initial stages of infection and leading to *ojokshaya* in the later stages of the disease progression. The first two derangement of *ojas* are amenable to treatment with appropriate drug, vitalizers and rejuveners but the last does not respond to treatment. AIDS present the picture of *ojokshayam*. Though there is no exact equitable single co-relation to AIDS in Ayurveda, there are few more conditions whose symptoms when considered together provide a picture comparable to this, they are *rajayakshma*, *shosha*, *kshaya*, *sannipataja jwara* etc. The stages of AIDS resemble *hatoujas*^[11], *ojonirodhaka jwara*, *shosha*, *madhumeha*, *asadhya pandu*, *udanavruta pranavata* and conditions of *dhatukshaya* leading to *ojovyapat* i.e these three stages of *ojo vyapat* may be considered as the successive stage of AIDS leading to *kshaya* of *ojas* ultimately it will lead to *kshaya* of para *ojas* which will result in death. This condition is considered as *prathyakeya* according to *acharya sushruta*.

Importance of Rasayana Therapy

The pharmacokinetics interactions, adverse drug reactions, drug resistance and incomplete adherence to drug intake due to cost factor etc becomes reason for the treatment failure so to avoid that suitable therapeutic strategy should be adopted. By adding *Rasayana* therapy as adjuvant along with the standard treatment protocol will help in restoring the impaired immune system of AIDS patients as well as preventing HIV infection. This *Rasayana* therapy is not only limited to drug based regimen but it's a specialized procedure which promote the health to lead a healthier life and used in therapeutic management of disease on other hand as *naimittika rasayana*. The *rasayana* therapy comprises of use of *oushada*, *anna* and *vihara* conducts to promote nutrition of the body leading in turn not only to impart immunity and body resistance against the disease but also prevent ageing, increase longevity, improves mental faculties and add vitality and luster to the body. So adopting *naimittika rasayana* as add on therapy to standard treatment protocol to manage AIDS will surely improve the longevity and lifestyles by modulating immune system, increasing CD4+ counts and combat the adverse drug reactions.

Importance of Naimittika Rasayana

There are many single and compound drugs which acts as *rasayana* and are very much beneficial in management of AIDS.

1. Single drugs
<ul style="list-style-type: none"> • <i>Amalaki</i> • <i>Guduchi</i> • <i>Haritaki</i> • <i>Madhuyashti</i> • <i>Pippali</i> • <i>shatavari</i> • <i>tulasi</i> • <i>Ashwagandha</i> etc

In one of the experimental studies on these drugs are shown immunomodulatory effects and may be therapeutically useful in AIDS patient for restoring immunity. *Amalaki* is a rich source of ascorbic acid, which is best among *vayasthapaka* herbs. This *amalaki* is fortified with vit-c that is a natural and abundantly available powerful antioxidant, anti-inflammatory and free radical scavenger of the metabolism. In one of the study it has showed increased total protein level and increased body weight due to positive nitrogen balance. Even *guduchi* is very much beneficial in people who are suffering from HIV or other autoimmune disorders as it is helpful in relieving the symptoms related to HIV in 60% of people and even decrease the side effects caused by HIV. There are reports that *Guduchi* protected animals against infections. The studies revealed that it stimulated macrophages and caused the secretion of cytokines there by having the immune-modulating action. So in condition where the immune system is at lowest mode such as AIDS, the drug *Guduchi* may be helpful. *Shatavari*, *Guduchi* and *Amalaki* protected rats against stress included gastric damage; there is increase in serum cortisol levels. The protective effects were found to be mediated through macrophages. *Madhuyashti* had shown anti HIV action in vitro studies and believed to inhibit the enzymes i.e protein kinase C which are responsible for binding of HIV-1 to CD4 receptors. It is reported that treated patients had maintained their asymptomatic status and have not shown any immunologic deterioration. It is also reported that *madhuyashti* having mineralocorticoid effects and can even cause hypokalemia, hypertension and oedema. Muscle pain and weakness were also reported so individual with hypertension should be cautious in its use. Studies on *ashwagandha*, *pippali* and *tulasi* revealed antistress potential, and also found to be useful immunomodulators.^[12]

2. Compound formulations
<ul style="list-style-type: none"> • <i>Chavanaprash</i> • <i>Pippalivardamanarasayana</i> • <i>Haritakiyoga</i> • <i>Pippali rasayana</i> • <i>Aindri rasayana</i> • <i>Amrita prash rasayana</i> • <i>Agasthya haritaki rasayana</i> • <i>Brahma rasayana</i> • <i>Shilajatu rasayana</i> • <i>Amalaka rasayana</i> etc

Even compound formulations have a great rasayana effect on body and can improve the immune functions in HIV/AIDS patients.

Importance of *Ajasrika rasayana*

Ajasrika rasayana helps to maintain the effective nutrient levels through dietetics. high protein and calorie food supplements, ghee, milk and milk products etc falls under this category. this type of *rasayana* also influence on mental and physical performance. In the management of AIDS nutritional component is as important as drugs.

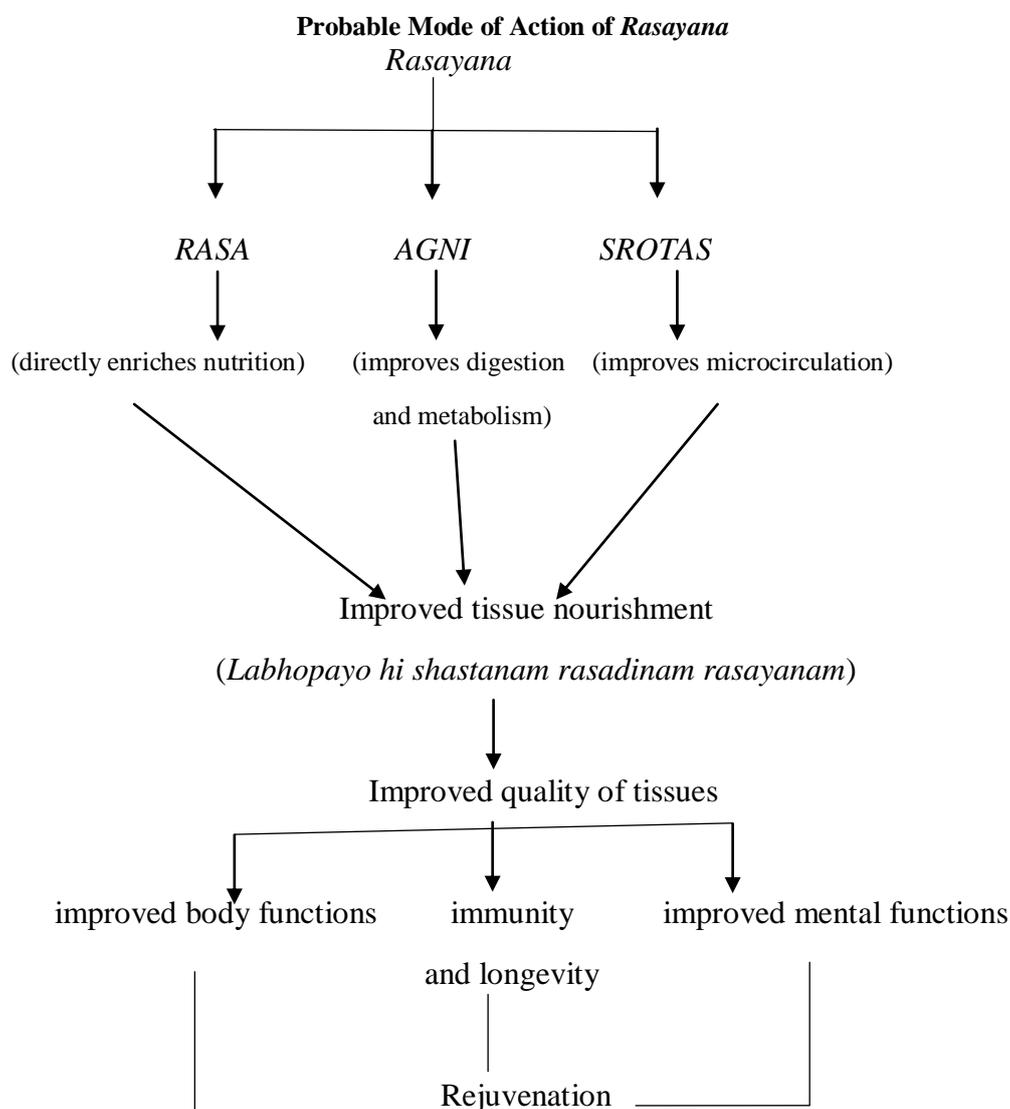
Importance of *Achara rasayana*

Achara rasayana is the *rasayana* related to vihara. This is socio-behavioral *rasayana* aiming at personal hygiene, mental tranquility, abstinence from anger, evil thoughts and action possessing charitable disposition and compassion and self control which has a big role in preventing AIDS and also maintaining the

psychosomatic harmony. Even after the exposure if the individual follows this *rasayana* one can minimize the spread of AIDS to other members in the society. Hence both the healthy individual to maintain their healthy state as well as diseased person with AIDS to minimize the spread and risk factors should follow this *achara rasayana*.

Benefits of *Rasayana* therapy^[13]

- It enhances the longevity.
- Boosts memory.
- Sharpens the intellect.
- Lends glow to the skin.
- Voice becomes melodious.
- Makes speech more effective.
- It increases the stamina of the senses.
- keeps the body and mind young.



The *Rasayana* drugs act at one or all the three above mentioned levels. As a result of which improved quality of tissues develop in the body and individual can achieve benefits like

- Nutraceutical action – Nourishes and maintains the cell life.
- Regenerative action - Encourage the growth of new cell.
- Immuno-modulatory action – Prevent recurrent infection, expelling the damaged cells.
- Antioxidant action – Eliminates the toxic metabolites and pollutants.
- Adaptogenic – maintains the balance between mind and body.

Thus *rasayana dravyas* acts at sub-cellular level and by the virtue of its *rasa, guna, veerya, vipaka* and *prabhava* promotes digestion, metabolism, maintains equilibrium of *dosha*, enhance nourishment and promotes physical and mental functions thus it becomes effective therapy in the management of AIDS.

Probable Mode of Action of Achara Rasayana

In AIDS patient depression is Common symptom which can Negatively impact mind, body, Mood and behavior. *Achara rasayana* keeps suitable normal psychological activity which is helpful in balancing the hormones. This benefits the patients of AIDS to relieve mental stress and physical strain, improves patience and tolerating capacity, improves sleep, maintains better social and family relationship, helpful in personality development, improves quality of life, acts as catalyst for rejuvenating medicine which improves the *vyadhikshamatwa* ultimately improves the psychoneuro immunity.

DISCUSSION

- AIDS is a global epidemic with no effective cure which involves multi system chiefly immune system characterized by opportunistic infection and malignancies which can be co-related to *ojokshaya* where *Rasayana* therapy is considered as the front line therapy to treat the disorders of *ojas*, which not only includes diet and drugs regimens but also behavioral modalities.
- The *rasayana* therapy will act at the level of *rasa* by directly enriching the nutritional value of the circulatory plasma, at the level of *agni* which improves digestion, absorption, metabolism leading in turn to improved nutritional status and at the level of *strotas* that is the micro circulatory channels carrying nutrition to the tissue. this also help in the formation of *prashastha* dhatu for maintaining the proper nutrition and equilibrium of all the *doshas* and *dhatu*.
- The three stages of *ojo vyapat* may be considered as the successive stage of AIDS leading to *kshaya* of *ojas* ultimately which will result in death.
- The *Naimittika rasayana* acts by breaking *dosha* – *dushya sammurchana* along with *dhatu poshana*

which is evident from recent studies that in aspect of non-specific immunity it increase activation of polymorph neutrophils for phagocytes and enhance their chemoattraction capacity and in aspect of specific immunity proliferation of lymphocyte leading to production and also cytotoxic induction of t-helper and killer cells and activation of complement pathways, significant increase of immunoglobulin levels are noticed in patients.

- The *aindri rasayana* is said to be *parama ojaskaram* and *shilaju* is considered as best *rasayana dravya* which can be used in all most all type of diseases.
- In the management of AIDS nutritional component is as important as drugs which can be achieved by *ajasrika rasayana*. This not only act on physical performance even it influence the mental performance of an individual.
- The psychosomatic link is recognizable in case of almost all diseases and same can be seen in AIDS patients as well. These factors affects the *ojas* formation and disturbs the integrity to the immune system which increase the individual susceptibility to infection. Example if person afflicted with *shoka, bhaya, krodha* etc there will be diminution of *rasa* in *hridaya* because of which he gets *shosha* or *pandu* or *sannipataja atisara* etc. By following *Achara rasyana* one can reduce the stress, achieve mental tranquility and thus prevent the release of freeradicals and even improves psychoneuroimmunity. Hence both the healthy individual to maintain their healthy state as well as diseased person with AIDS to minimize the spread and risk factors should follow this.
- Generally *rasayana* therapy should be preceded by *shodhana*, because it doesnot produce desired beneficial effect without *shodhana* but the *Vaidya* should administer appropriate *rasayana* only after proper *koshta shuddhi* taking into consideration the suitability of the drug, type of *shodhana karma* and choice of *dravya* are to be based on the *bala* of patient (*shareerika* and *manasika*), severity of *vyadhi* and the constitutional factor.
- Recently there has been more focus on antioxidant nutrients. Its role is to reduce the risk of wide range of chronic diseases and degenerative conditions. The antioxidant effects of herbs, vegetables, food articles and fruits are under study in India and other countries. Antioxidants lower the risk of major diseases by neutralizing the effects of highly reactive molecules called as free radicals which has a role in many diseases. Further study on the same is required to understand this in a better way.

CONCLUSION

AIDS can be consider under the concept of *Ojokshaya*. Since this is one of the most prevailing disease where *Rasayana* therapy are said to be the best when it is added as adjuvant therapy in the management of AIDS, This

will help to conquer the hepatotoxic effect due to ART by decreasing the recurrent resistance of HIV virus to ART and also helpful in lowering the rate of occurrence of opportunistic infection. *Rasayana* in the form of *ahara* and *oushada* is of great use in improving longevity and life style of the AIDS patients by boosting and stimulating the immune system and by increasing the CD4+ counts. *Achara rasayana* if followed correctly have an upper hand in preventing and spreading of AIDS in the society which can be achieved by conducting more educational programmes in schools and college. creating awareness about AIDS by teaching codes and conducts in individuals will be more beneficial. Thus *rasayana* in the form of *naimittika*, *achara* and *ajasrika* surely can be adopted in the management of HIV/AIDS to achieve better results.

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