

Rasayana as a Public Health Tool in Communicable Diseases: A Review

Review article

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Abstract

A number of endemic communicable diseases present a serious public health hazard in India. India is going through a period of transition, both epidemiological and demographic transition. The expectancy of life has increased, with consequent rise in degenerative diseases of aging and life-styles. Nevertheless, communicable diseases are still dominant and constitute major public health issues. Due to low socio economical standard, poor hygienic conditions and population explosion, communicable diseases have become a serious threat to the society in our developing country. *Rasayana* therapy is particularly helpful in management of such a disorder where immunity and infections are playing central role. As per *Ayurvedic* principles immunity of a person can be enhanced by use of proper diet and lifestyle along with a proper use of *Rasayana*. *Rasayana* is actually that which increases the essence of each *Dhatu* starting from *Rasa*. Taking *Rasayana* is helpful to increase the immunity of person to keep him away from communicable diseases. They are of two types *Urjaskara* (enhance the general immunity) and *Roganuta* (used in specific disease conditions). There are many *Rasayanas* used to improve the immunity and cure diseases like *Shilajatu Rasayana* for *Prameha*, *Lauha* in *Pandu*, *Amalaki*, *Haridra*, *Chyavanprash* etc.

Key words: Communicable diseases; *Rasayana*; Immunity.

Introduction:

Communicable diseases continue to be a major public health problem in India. Many communicable diseases like tuberculosis, leprosy, vector borne diseases (malaria, kala-azar, dengue fever, chikunguniya, filaria, japanese encephalitis), water-borne diseases (cholera, diarrheal diseases, viral hepatitis

A & E, typhoid fever etc), zoonotic diseases (rabies, plague, leptospirosis, anthrax, brucellosis, salmonellosis etc) and vaccine preventable diseases (measles, diphtheria, tetanus, pertussis, poliomyelitis, viral hepatitis B etc) are endemic in the country. In addition to these endemic diseases, there is always a threat of new emerging and re-emerging infectious diseases like avian influenza, SARS, novel H1N1 influenza, hanta virus etc. Local or widespread outbreaks of these diseases result in high morbidity, mortality and adverse socio-economic impact. Community surveys have revealed that about one-quarter of all deaths in the country are due to diarrheal diseases, respiratory infections, tuberculosis and malaria. Many Expert Committees, dating back to the Bore Committee in 1946,

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reviewed the existing health infrastructure/situation in the country and made recommendations needed to control diseases including communicable, non-communicable and emerging diseases. More recently, the Expert Committee on Public Health System (1996) and the National Commission on Macroeconomics and Health (2005) examined these issues. National Five Year Plans, National Health Policy (1983, 2002) and many international initiatives such as Health for All by 2000, Calcutta Declaration on Public Health in South-East Asia (1999), U.N. Millennium Development Goals (2000), Global Commission on Macroeconomics and Health (2001), revised International Health Regulations (2005), Asia Pacific Strategy for Emerging Diseases (2005, 2010) have also provided strong policy directives for the development of health care delivery system to control/prevent diseases.(1,2) 'Rasayanachikitsa' is a specialized section of *Ayurveda*, which mainly deals with the preservation and promotion of health by revitalizing the metabolism and enhancing immunity.

Materials and Methods:-

This article is based on a review of *Ayurvedic* texts. Materials related to *Rasayana* concept, and other relevant topics have been collected. The main *Ayurvedic* texts used in this study are *Charaka Samhita*, *Sushruta Samhita*, and available commentaries on these. We have also referred to the modern texts and searched various websites & reports to collect information on the relevant topics.

'Rasayana' concept of 'Ayurveda'

In *Ayurveda*, on the basis of their therapeutic effects *Bheshaja* (medicine) is described to be of two types (3) :-

1. **Svathasyorjaskara-** That *Bheshaja* which promotes strength and immunity in the healthy individuals.

2. **Roganuta or Rogaghna-** That *Bheshaja* which alleviates various disorders.

That *Bheshaja* which promotes strength and immunity, mostly in the healthy individuals, is usually included in *Vrishya* (Aphrodisiac) and *Rasayana* therapy (rejuvenative and promotive treatment). (4) *Rasayana* therapy is one of the branches of *Ashtanga Ayurveda*. The word *Rasayana* means the way for attaining excellent *Rasadidhatus*. (5) Such a phenomenon is conducive to promotion of the qualities of the *Dhatus*. The improved nutritional status and the better qualities of the *Dhatus* lead to a series of secondary attributes of *Rasayana* which bestow longevity, impart strength & *Ojabala* etc. *Oja* is the factor responsible for *Vyadhikshamatva* (immunity) of an individual. (6) *Rasayana* therapy has been classified by *Charaka* into two groups: (7)

- a) **Kutipraveshika (Indoor) Rasayana Vidhi and**
- b) **Vatatapika (Outdoor) Rasayana Vidhi.**

According to the requirement of an individual the *Rasayana* drugs are divided into three groups: (8)

- 1) **Kamya Rasayana (promotor of normal health):-** e.g. *Triphala Rasayana*, *Chavanprasha*, *Brahma Rasayana*, *Amalaki Rasayana*, *Louha Rasayana* etc.
- 2) **Naimittika Rasayana (promotors of specific vitality in specific disease):-** e.g. *Tuvaraka* and *Shilajatu* for *Kustha* and *Prameha* respectively.
- 3) **Ajasrika Rasayana (Dietary Rasayana):-** e.g. milk, ghee etc.

According to the mode of action the *Rasayana* drugs are divided into *Shodhana* and *Shamana* types. (9) *Achara Rasayana* is just like a code of good conduct and habit. This is a non-drug

approach to *Rasayana*. In this, without using a pharmacological recipe, one can gain all the benefits of *Rasayana*.

The term '*Rasayana*' consists of two words viz. *Rasa* (the essence of food i.e. *Ahara Rasa*) and '*Ayana*' (the sense of attainment). *Acarya Caraka* has described *Rasayana* as the means of obtaining the best qualities of *Rasadi Dhatus*. It is believed, in *Ayurveda* that the qualities of the '*Rasadhatu*' influence the health of other *Dhatus* (tissues) of the body. Hence any medicine that improves the quality of '*Rasa*' ('*Rasayana*') should strengthen or promote the health of all tissues of the body. '*Rasayana*' drugs act inside the human body by modulating the neuro-endocrino-immune systems and have been found to be a rich source of antioxidants. (10) These *Rasayana* drugs are said to possess the following properties: they prevent ageing, re-establish youth, strengthen life, brain power and prevent diseases. *Rasayana* therapy is done for a particular period of time with strict regimen on diet. '*Rasayana*' drugs are very rich in powerful antioxidants and are good hepatoprotective and immunomodulating agents. '*Rasayana*' is not a drug therapy, but is a specialized procedure practiced in the form of rejuvenation recipes, dietary regimen and special health promoting right conduct and behavior, i.e. '*Achara Rasayana*'. *Sushruta* while defining '*Rasayana*' therapy says that it arrests ageing ('*Vayasthapam*'), increase life span ('*Ayushkaram*'), intelligence ('*Medha*') and strength ('*Bala*') and thereby enable one to prevent disease. (11) *Rasayana* drugs enhances the functions of the whole body system. '*Rasayana*' treatment for rejuvenation is done after the body system

is thoroughly cleansed by '*Panchakarma*' therapy. (12) '*Panchakarma*' is essentially a pretreatment equipping the body tissues for '*Rasayana*' therapy. *Sushruta* observed that a person, whose system is not been previously cleansed by proper purification remedies, cannot expect good results with '*Rasayana*' treatment.

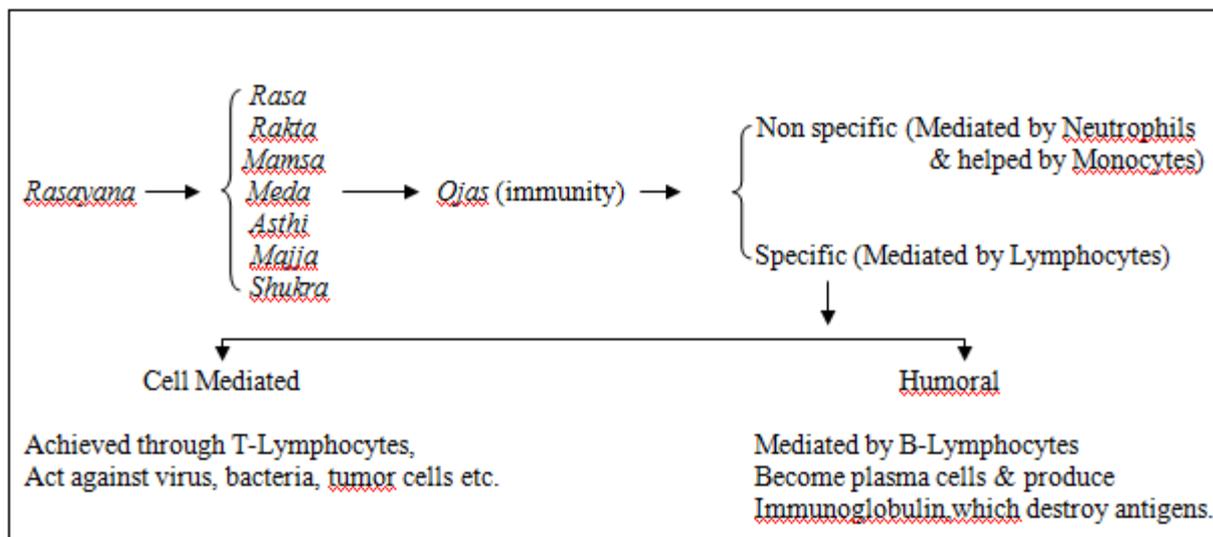
Mode of Action of *Rasayana* Drugs:

The word '*Rasayana*' addresses the "optimization of circulating the nourishing foods through tissues & cells." so getting adequate quantity & quality of *Ahara Rasa* with its proper circulation through channels is the main concept of *Rasayana* therapy. The concept of *Rasayana* therapy is not a single drug treatment but it is a comprehensive and specialized regimen capable of producing healthful longevity and improved mental faculties by acting at the level of *Rasa* (nutrition), *Agni* (digestion & metabolism) and the *Srotamsi* (microcirculation), thus enabling the organism to procure the best qualities of different *Dhatus*. (13)

***Rasayana-Vyadhikshamatva*:**

Ayurveda conceives an unique concept of *Ojas*, which is the essence of all the *Dhatus* and is responsible for vital strength of the body and resistance against the disease. (14) *Rasayana* is believed to promote the process of *Dhatuposhana* and enrich *Ojas* leading to *Vyadhikshamatva*. The defense mechanism present in the body allows us to survive in the potentially hostile world of infectious agents. This constitutional order is immune system. Any change in this order can lead to diseases. The relation of *Rasayana* and *Ojas* is mentioned in following table no.1:

TABLE NO.1: HYPOTHESIS DEPICTING RELATION OF RASAYANA AND OJAS: (15)



Biological Effects of Rasayana Drugs:-

Various studies are done on different aspects of Rasayana drugs can some contemporary terminologies are found which have actions similar to Rasayana like-

- Immunomodulator
- Adaptogenic
- Antioxidant
- Nootropic
- Antistress

These terms can be understood as follows-

Immunomodulator- A substance that alters the immune response by augmenting or reducing the ability of the immune system to produce antibodies or sensitized cells that recognize and react with the antigen that initiated their production.(16) eg. *Tulsi, Guduchi, Shatavari* etc.

Adaptogen- An adaptogen is a metabolic regulator which increases the ability of an organism to adapt to environmental factors, and to avoid damage from such factors. Environmental factors can be either physiological (external), such as injury or aging, or psychological (internal), such as anxiety. (17) Some adaptogenic herbs are

Ashvagandha, Tulsi, Haridra, Pippali, Amalaki, Guduchi, Shatavari etc.

Antioxidant- Antioxidants are defined as 'substances whose presence in relatively low concentrations significantly inhibits the rate of oxidation of targets' being present in serum, these antioxidants circumvent the damage caused by oxygen free radical. (18) e.g. *Triphala, Guggula, Haridra* etc.

Nootropic- These are substances which promote intelligence and functions of brain. These drugs can be categorized as *Medhya Rasayana* drugs. *Acharya Charaka* has described four important *Medhya Rasayana* drugs namely- *Mandukparni, Guduchi, Yashtimadhu and Shankhapushpi*. (19)

Traditionally, 'Rasayana' drugs are used against a plethora of seemingly diverse disorders with no pathophysiological connections according to modern medicine. Looking at these diverse applications, adaptogenic agents from this group of 'Rasayana' were identified. (20) It has been reported that the 'Rasayanas' are rejuvenators, nutritional supplements and possess strong antioxidant activity. They also have

antagonistic actions on the oxidative stressors which giving rise to the formation of different free radicals. Therefore, the therapeutic indication of these drugs can include the diseases relating to all the above systems. Their antistress/adaptogenic actions have made them therapeutically far more important. (21)

Mode of action of some *Rasayana* drugs:

Majority of *Rasayana* drugs works on multiple areas and helps in achievement of *Vyadhikshamatva* through its *Dipana*, *Pachana*, *Medhya*, and non specific immune buster properties. Pharmacology of some *Rasayana* drugs has been given in the below table no.2:

Table No. 2: Pharmacological action of some *Rasayana* drugs

Rasayana Drugs	Proved Pharmacological Actions
<i>Yashtimadhu</i> (<i>Glycyrrhiza glabra</i> Linn.)	Enhance the macrophage membrane function(22)
<i>Guduchi</i> (<i>Tinospora cordifolia</i> Willd.)	Inhibit the lipid per oxidation and superoxide and hydroxyl radicals in vitro(23)
<i>Amalaki</i> (<i>Emblica officinalis</i> Gaertn.)	Strengthen the defence mechanism against free radical damage induced during stress(24)
<i>Haritaki</i> (<i>Terminalia chebula</i> Retz.)	In immune-modulation studies, humoral immunity was enhanced where T-cell counts remained unaffected in the animals, but cell-mediated immune response was stimulated.(25)
<i>Ashvagandha</i> (<i>Withania somnifera</i> Dunal.)	Possesses free radical scavenging activity(26)
<i>Tulsi</i> (<i>Ocimum sanctum</i> Linn.)	Strengthens the immune response by enhancing both cellular and humoral immunity, shows anti-inflammatory action. (27)
<i>Brahmi</i> (<i>Bacopa monnieri</i> Linn.)	Exhibit anti-stress activity. (28)
<i>Vacha</i> (<i>Acorus calamus</i> Linn.)	Potent antioxidant by inhibition of 1, 1- diphenyl-2-picrylhydrazyl (DPPH) free radical. (29)
<i>Neem</i> (<i>Azadiracta indica</i> A. Juss)	Shows immunomodulatory effect. (30)

Discussion:

When the etiology of communicable diseases is discussed carefully, it is observed that, these diseases are caused due to the *Agantuka Karana* and coming under the *Adhibhautika* or *Sanghatabalapravrutta Vyadhi*, which is an *Aupasargika Roga*. *Sushruta* has clearly mentioned regarding *Aupasargika roga*.(31) Hence Communicable diseases

is *Sanghatabalapravritta* in origin, implying *Bhutas* or living creatures or viruses etc are the causative agents and the disease can be transmitted from one person to another person. *Vyadhikshamatva* is interpreted as *Vyadhi Balavirodhitva* (antagonistic to strength and virulence of disease) and *Vyadhi Utpadaprativandhakatva* (the capacity to inhibit or neutralize or resist or overcome

disease causing agents). This *Vyadhikshamatva* depends on the presence of *Bala* or *Oja* in the body. *Oja* represents vitality, vigour and capacity to resist decay and disease. *Ojas* is the *Sara* or essence of the *Dhatus*. *Ojas (Bala)* is responsible for promoting the stability and strength of the organs of the body. The loss or deficiency of *Ojas* leads to wasting, decay and degeneration.

Communicable diseases are as mentioned, produced due to infections, which manifests its symptoms prior to loss of immunity or *Vyadhikshamatva*. *Medhya Rasayana* drugs possess potent anti anxiety effects. *Kamyā Rasayana*, *Naimittika Rasayana* and *Ajasrika Rasayana Dravyas* can be helpful for the promotion of the *Rasadidhatus* and responsible for increase of *Oja*. For the preventive aspect of the disease *Achara Rasayana Sevana* can be done, which can decrease the spread of the disease. In this way the internal environment of the body can be maintained and the disease process can be checked. *Ayurvedic* concept of '*Rasayana*' seems not only to embody the principal aspects of new hypothesis centered on an immuno-endocrine psycho neuro axis but also to go beyond it by encompassing the entire human system with its diverse and complicated immune endocrine pathway. (32)

Conclusion:

Procedures of revitalization and rejuvenation (*Rasayana* therapy) can be adopted to increase the power of resistance to disease, these procedures retarded advancement of aging also. *Rasayana Dravyas* are considered to improve *Vyadhikshamatva* of the body; it may be helpful to promote the health of the person suffering from communicable diseases. From above, it can be concluded that *Rasayana* can be used for prevention of communicable diseases. Vast research

studies are needed so that can be used as preventive tool in future.

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