



Review Article

ROLE OF *PATHYAPATHYAS* IN THE ADMINISTRATION OF *RASOUSHADHAS*

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**ABSTRACT**

Ayurveda is a medical system which has well developed systems of diagnosis and treatment. It is the only medical system in world, which has apparatus to deal with complete human being, which comprises of mind, body and soul. The treatment is highly personalized according to the patient's physical nature, age, immunity, mind power, habit etc. A customized diet, life style, exercise, mental support, breathing and meditation techniques also form the part of the treatment. There is a section in *Ayurveda* called '*Rasasastra*' which describes the use of metals, minerals, and poisons with their actions to combat chronic and complicated diseases. As we all know most of the *Rasa* drugs are toxic. These pass through extensive processing before they are declared fit for internal use. These preparations are sustaining themselves since centuries in clinical use. A thing that does not adversely affect the body and mind is known as *Pathya* (wholesome) the diet and regimens opposite to these qualities are said to be *Apathya* (unwholesome). Many *Pathyapathya ahara viharas* are mentioned in the *Rasa* classics. The rationale behind the selection of *Aharas* and *Viharas* as *Pathya* (wholesome) or *Apathya* (unwholesome) mainly depends on the properties of drugs which are used as *Pathya* as well as that of drug which is used as medicine. The implied meaning is rules and regulations about diet and movements etc. to be advised by the Physician along with treatment. The medicines are ineffective unless these are followed. In the case of *Pathya* most probable drug interaction will be synergism and of *Apathya dravyas* will be antagonism. However, their improper processing, misuse, improper mode of administration may cause adverse effects in the human body. Even though the drugs are in assimilable forms, there should be suitable vehicles for their absorption. Here comes the importance of '*Pathyapathya*' while using these metallic forms. Suitable *Pathya* is necessary while using these *Rasa* drugs for proper absorption of drug, to reduce its adverse effects, to increase its bio-availability etc.

**KEYWORDS:** *Pathya*, *Apathya*, *Rasaoushadhas*, Chelation.

**INTRODUCTION**

Ayurveda is a medical system which has well developed systems of diagnosis and treatment. It is the only medical system in world, which has apparatus to deal with complete human being, which comprises of mind, body and soul. The treatment is highly personalized according to the patient's physical nature, age, immunity, mind power, habit etc. A customized diet, life style, exercise, mental support, breathing and meditation techniques also form the part of the treatment. In short, Ayurveda is safe, effective and holistic approach to achieve 'everlasting health'.

There is a section in *Ayurveda* called '*Rasa sastra*' which describes the use of metals, minerals, and poisons with their actions to combat chronic and complicated diseases. Historically, *Rasasastra* an offshoot of *Ayurveda* developed around the period when Buddha existed (more than 2500 yrs ago). Ever since, it has been widely used by Ayurvedic doctors in India would have died as a result of taking these medicines in all these yrs and these could not have gone unnoticed. However the findings are totally opposite. These *Rasa* medicines have been used as wonderful life saving drugs for thousands of years without any adverse effects. The use of metals, poisons in medicines as described in *Ayurveda*, should not sound

scary as the use of dangerous or poisonous ingredients is involved in all major medical systems including modern medicine.

*Rasa sastra* can be called '*Vedic chemistry*'. As the modern laboratory chemicals were not invented in the *Vedic* era (3000 yrs ago), herbal juices were used instead. Although the methods of testing these metallic medicines described in *Rasasastra*, sound outdated or unscientific, they seem to be based on some chemical principles. Because medicines declared non-toxic through these methods do not create any harmful effects in the body. Not only they are harmless, they work like steroids used in modern medicine and can do miracles in difficult disease conditions or even the 'incurable diseases'.

Ayurveda is the only system of medicine where therapeutic importance of metals in physiology and clinical practice was first recognized and use of Nanotechnology in pharmaceuticals too. In *Ayurveda* many metallic preparations are in use since 12<sup>th</sup> century AD. They have intricate process of manufacturing before they are clinically prescribed. After undergoing these critical phases of processes metal will lose their chemical identity and becomes a new bio complex bioassimilable<sup>[1]</sup> form called *Bhasma*. The same metal processed with different

herbs acts on different target organs in the organic human body. Because metals and minerals are *Yogavahi* (Catalytic carrier), they carry the actives of the herbs more effectively than these herbs would do alone. These preparations are sustaining themselves since centuries in clinical use. One cannot exclude its use just by saying that heavy metals are toxic.

Although this is a hypothesis, which many metallurgists also support, it is worth mentioning that the process of *Shodhana* (purification)<sup>[2]</sup> and *Marana* (incineration)<sup>[3]</sup> converts the metals and minerals to organometallic compounds, which are better assimilated in the human system with hardly any side effects or toxic effects.

As we all know most of the Rasa drugs are toxic. These pass through extensive processing before they are declared fit for internal use. These are first purified and then burnt several times and converted to '*Bhasma*'. Each time before *Marana*, the metallic powders are processed with fresh herbal juices to neutralize their toxic effects. Some of the metals are burnt up to 100 times to make sure the heaviness or toxic effect of the metals is nullified or till it attains the '*Varithara*'<sup>[4]</sup> like '*Bhasma*' qualities. Thus these are no more toxic metals. The modern chemical testing might still indicates the presence of that metal, but according to Ayurveda, these metals have been transformed to non-toxic form, which is safe for internal use. If these medicines were fatal, it would have been evident in 1000s of years of their use. Ayurvedic formulations containing these heavy metals produce different effects like enhancement of bio-availability to the cell, act as carriers for active ingredients and as catalysts.

However, their improper processing, misuse, improper mode of administration may cause adverse effects in the human body. Their adverse effects are well documented in the classics. Antidotes and management of symptoms caused due to improper consumption of these drugs are also vastly described.

Even though the drugs are in assimilable forms, there should be suitable vehicles for its absorption. Here comes the importance of '*Pathyapathyas*' while using these metallic forms. A detailed description about the '*Pathyapathyas*' are also available in the classics. Suitable *Pathyas* are necessary while using these *rasa* drugs for proper absorption of drug, to reduce its adverse effects, to increase its bio-availability etc. It is worth noting that maximum description of *Pathyapathya* in *Rasasastra* is available in *Rasa Ratna Samuchaya* and *Rasarnava*.

### Definition of *Pathya*

The word '*Pathya*' is derived from '*Patha*' which means, the correct road. A thing that does not adversely affect the body and mind is known as *Pathya*<sup>[5]</sup>. *Pathya* can be defined as recipes which should relish the mind and after ingestion, should not produce any untoward effect. The implied meaning is rules and regulations about diet and movements etc. to be advised by the Physician along with treatment. The medicines are ineffective unless these are followed. A good and proper diet in diseases is worth a 100 medicines and no amount of medication can do good to a patient who does not observe a strict regimen of diet.

In Ayurveda, instead of being content with specifying the nature of diet in diseases in general, mentions the names of article, which should or should not be taken in any specific diseases, judged by the light of their properties of aggravating *Vata*, *Pitta*, *Kapha*. The purpose of intake of wholesome drugs is to maintain the balance between *Dosha*, *Dathus* and *Malas* and thereby alleviate the diseases. Maintenance of the normal health and the alleviation of various diseases form an essential part of the definition of *Pathya*. It is also quoted that no amount of medicine can do any good to patient who does not observe *Pathya* likewise no amount of medication is needed to a patient if he follows *Pathya*<sup>[6]</sup>.

As it is essential to take into account the psychological aspects of the treatment, the determination of *Pathya* also includes personal likings of the patients. A *Pathya* drug is therefore supposed to be one which suites the personal likings of the individual. That is to say, a given diet or drug will not be effective if it is taken unwillingly by the individual perforce; it will be more effective only when the individual has a feeling that by taking it will be able to maintain his normal health or will be free from the malady he is suffering from. The given drug or diet should also be in conformity with his personal likings. For example, if he has aversion to bitter things it would be advisable to avoid administration of such drugs or diet to him. Judging from various factors, even the most tasteful object might turn out to be *Apathya* and vice versa. To cite another example, ghee is generally regarded to be wholesome diet but intake of ghee in excessive quantity or its intake during spring or when it is prepared with drugs of opposite qualities or its intake by an individual of marshy land or by an individual having corpulent body or the one in whom *Kapha* is aggravated, is considered to be *Apathya*. To sum up, the effective *Pathya* or *Apathya* is however always to be determined in accordance with the dosage, condition, *Kala* (season), *Prakruti* (constitution), disease, *Avastha* (stages of diseases) etc. In short *Pathya* is the synonym of *Chikitsa* (*Chikitsitam hitam Pathyam*).

*Ahara* is given importance in suggesting "*Pathya-apathya*", but *Vihara* should also be given equal or more importance if required. *Pathya-apathyas* has 2 main aspects; one is disease wise and other is drug wise. Disease wise *Pathya-apathya* is similar in *Kashtoushadies* (Herbal) and *Rasoushadies* (metals and minerals). Drug wise *Pathya-apathya* differs in *Rasaushadhi* because some of the drugs are corrosive and toxic.

### Importance of *Pathyapathyas* In The Administration Of *Rasoushadhas*

Many *Pathyapathya ahara viharas* are mentioned in the *Rasa* classics. The rationale behind the selection of *Ahara* and *Vihara* as *Pathya* or *Apathya* mainly depends on their properties like *Rasa*, *Guna*, *Veerya*, *Vipaka*, *Prabhava* etc. Drug interaction with the above *Dravyas*, metabolism of drugs in the body, its mode of absorption and excretion; its action on increasing bio-availability; its anti-oxidant property etc should also be under stood before discussing about their significance in *Rasoushadhi seva*. Suitable *Pathyas* are necessary while using these *rasa* drugs for proper absorption of drug, to reduce its adverse effects, to increase its bio-availability etc. Therefore the physician

has the discretion to impose or relax the restrictions as per the medicine selected, condition of the disease and diseased.

The subject title itself shows the phobia towards the toxicity of *Rasoushadies*. There are drugs in *Rasa sasthra* which needs utmost care during administration; but their number is very few. Such drugs are to be 'scheduled' and their quality control and clinical use should be strictly monitored by the drug authorities. For Eg: *Sameera pannaga rasa*, *Malla sindoora*, *Rasa karpura*, *Talaka bhasma*, *Rasamanikya*, *Naga bhasma* and *Tamra bhasma* etc. Control over these drugs should be at all levels i.e. raw material, process, product and administering. Next category of drugs includes all *Khalvi rasayanas* with Mercury and Sulphur, *Kuppakwa rasas* and *Parpaties*. In this category, if the product is standard one, doctor is free to use it in prescribed dose. The 3<sup>rd</sup> category includes *Bhasmas* and *Pishties* of *Sudhavarga dravyas*, *Yasada bhasma*, *Vanga bhasma*, *Mandoora bhasma*, *Annabhedi sindoora*, and *Lavanas*. All the above said are either used alone or as herbomineral compounds. Special caution is not necessary in the therapeutic use of these drugs. The reasons behind the following of *Pathyapathyas* are enlisted below.

### 1. Easy absorption and bioavailability

Most of the *Pathya* drugs possess *Madhura rasa*, *Seetha veerya*, *Madhura vipaka*, *Snigdha guna* and *Tridosha samana* properties. These help for easy absorption of drug or make our body fit to absorb the drug. Dietary factors affect heavy metal uptake. Some *Dravyas* are essential for the absorption of a particular drug. For example acid medium is necessary for iron absorption. Therefore the *Dravyas* which are acidic in nature are *Pathyas* while taking *Loha bhasmas*<sup>[7]</sup>. Dietary factors also influence the absorption and assimilation of drugs. For example, an adequate level of dietary iron reduces uptake of cadmium and lead. Dietary calcium (milk, egg) reduces the uptake of cadmium. Using cast iron cooking vessels especially when cooking acidic foods (such as tomatoes) can add valuable iron to the diet. Also most of the *Pathyadravyas* will increase the bio-availability<sup>[8]</sup> of particular drug and thereby speed up its action on target organs. For example most of the *rasa* preparations contain *Pippali* or *Maricha*. The reason behind that both these *Dravya* contain an active principle called piperine which makes the *rasa* formulation more available to the cells. To increase the *Veerya* of *Rasa* fruits like *Draksha*, *Dadima*, *Kharjura*, *Kadali* should be consumed along with *Dadhi*, *Ksheera*, *Ikshu*, *Sarkara* as well as other similar procedures increasing cold attributes<sup>[9]</sup>.

Among *Apathyas* most of the classical texts has given more importance to the '*Kakaradi Gana*'. A group of substances are arranged in verse by selecting synonyms to start with 'ka' which are not *Pathya* during *Rasoushadhi sevana*<sup>[10]</sup>. This group is known as *Kakaradi gana*. There is difference of opinion in the constituents of '*Kakaradi gana*' amongst Acharyas, but generally they accept this '*Kakaradi gana*' as *Apathya in Rasaseva*. If a person uses these unwholesome ingredients and regimens, then the mercury

does not remain in the body and gets excreted<sup>[11]</sup> and results in fever.

Many of the drugs of *Kakaradi gana* for example *Kushmanda* (Ash gourd) possess *Sara* property i.e. purgative in action which reduce the time period for remaining the drug in the small intestine and give less opportunity for the absorption of poorly soluble substances. If they are consumed along with *Rasoushadies*, the medicine itself will go out of the body without performing its functions. That means the drug should remain in the body for a particular period of time for its absorption and for getting its benefits. Likewise *Kulatha* is to be avoided during *Silajatu Seva*. As *Kulatha* has the property of *Asmarighna*, it will clear out *Silajatu* from the body before its absorption<sup>[12]</sup>. According to *Rasarnava*, intake of salt creates several morbidities<sup>[13]</sup>.

### 2. Chelation<sup>[14]</sup>

Chelation is a chemical process that has applications in many areas, including medical treatment, environmental site rehabilitation, water purification, and so forth. In the medical environment, chelation is used to treat cardiovascular disease, heavy metal toxicity, and to remove metals that accumulate in body tissues because of genetic disorders (hemochromatosis). They incorporate the metal ions into an inner ring structure in the molecule (Greek: chele, claw) by means of structural groups called ligands (Latin: ligare, to bind); effective agents form stable, biologically inert complexes that are excreted in the urine. Chelation therapy, simply defined, is the process by which a molecule encircles and binds (attaches) to the metal and removes it from tissue. Once the bound metal leaves the tissue, it enters the bloodstream, is filtered in the kidneys, and is eliminated through the urine. The diuretic property of *Pathya* drugs supports this view. Another interesting fact behind the *Kakaradi gana* i.e. *Kusumanda*, *Karkati*, *Kalinga*, *Karavellaka*, *Kusumbhika*, *Karkkoti*, *Kadali* and *Kakamacika*<sup>[15]</sup> etc. is we can use these drugs after *Oushadha sevana kala* and it will be beneficial for chelating the unwanted drug which are deposited in the body. After the discontinuation of *Rasa bhasma*, *Brhati*, *Bilwa* should be taken internally as a general rule<sup>[16]</sup>. After a long period of time the retained drug may cause toxic effects.

### 2. Antioxidant property<sup>[17]</sup>

The *Rasa* drugs used for *Rasayana* purpose will release anti-oxidants or they will scavenge free radicals (reactive oxygen species ROS) which are produced as a result of the metabolic processes necessary for life. Free radicals are required for various functions like cell growth and energy production. But conversely their increased concentrations and non-removal from body can lead to abnormalities like neurodegenerative disorders and cancer. Antioxidants detoxify these free radicals and help in their removal from body. By neutralizing these ROS, antioxidants also slow down the aging process. If we are using these wholesome drugs along with *Rasoushadies*, then the *Rasa* drugs will attain more antioxidant property and thereby reduce chance of getting chronic poisoning. Common antioxidants include Vit. C present in lemon juice, Vit. E in egg. Plants supply most of our dietary antioxidants. In general, the fresher the better. Plant pigments



such as those found in green, yellow and red vegetables tend to be associated with antioxidants.

#### 4. Detoxification

Improper processing or mode of administration may release free metals or toxic elements. Therefore if we use the proper dietary supplements it will detoxify their toxicity. Good habits that can reduce the intake and uptake of toxic metals include eating a balanced diet that is high in fibre, eating organic foods and avoiding foods grown with pesticides and artificial fertilizers or in contaminated soils. Including high sulphur foods such as onions, garlic, legumes, and eggs probably assists the body in blocking uptake and decreasing retention of many toxic metals.

Now consider the strict regimen to be followed along with mercurial preparations beside the fact that it is almost always invariably combined with sulphur which is the advice given by noted nutritionists (It will be important to have a high protein diet as the sulphur bearing amino acids in the protein will greatly facilitate detoxification). *Pathya dravyas* are mostly protein rich as well.

#### 5. Nullifying adverse effects

*Pathya dravyas* (drugs) also decrease the *Theekshna* (sharpness) properties of *Rasa dravyas* and also alleviate the side effects that may occur during its administration. If *Theekshna dravyas* are used along with *Rasoushadhies* then adverse effects may occur, as *Rasa* drugs itself are very much potent. If *Pathyas* also possess *Theekshna gunas*, it may hamper the mucosal lining of the GIT and sometimes may end in serious problems. Most of the *Pathya dravyas* are having *Deepana, Pachana and Anulomana gunas*. These facilitate easy break down of drugs in GIT and hence helps for its better absorption.

*Agni* performs a major role in metabolic functions of the body. Proper digestive power is necessary for metabolism, absorption and excretion of drugs. Patient who have been advised to take *Parada bhasma* (Mercury) will be usually seriously ill. In such patients, their digestive power will be poor. The substances mentioned under *Kakaradi* are heavy, immature and difficult to digest and hence contraindicated. Therefore the *Dravyas* which possess the qualities to maintain equilibrium of digestion, absorption and excretion comes under *Pathya* group for example *Draksha, Ikshu, Dadima* with *Ghrita, Ksheera* etc<sup>[18]</sup>. Also *Pathya dravyas* should not be *Vidahi, Vishtambi* etc. This type of foods gives rise to flatulence, burning sensation etc during its digestion and cause the vitiation of *Vata* and *Pitta*. If the *Rasa bhasma* does not get digested, then the person suffers from fever, drowsiness, excessive heaviness in the heaviness in the umbilical region, burning sensation inside the body, numbness and suppression of the power of digestion<sup>[19]</sup>.

#### CONCLUSION

In the case of *Pathyas* most probable drug interaction will be synergism and of *Apathya dravyas* will be antagonism. The *Bhasma* is biologically produced nano particles and are taken along with milk, butter, honey, or ghee, thus, this makes these elements easily assimilable, eliminating their harmful effects and enhancing their biocompatibility. However, there are a number of things of

a dietary nature that are beneficial, protective, and supportive of good health and the bodies own natural chelating mechanisms. Many herbs and supplements have natural chelating characteristics and properties that help to detoxify the body. By following the authentic books of Ayurveda for preparation of these metallic formulations and their uses with suitable *Pathyapathyas* and *Anupanas*, under the supervision of well qualified Ayurvedic physician, results in the tremendous benefits of heavy metals other than detrimental effects.

The metals are present in the earth's crust and may enter our bodies continuously at low levels. It is a common mistake, based on fear and misinformation, to believe that a toxin has a linear toxic effect down to the lowest levels. All toxins have a safe threshold below which there is no toxicity. In fact, below a safe threshold toxicity disappears and there is no toxicity at all and in some cases even benefit exists. Recent developments have high lightened the need to research on these points.

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