

CHAPTER-19

A BRIEF OVERVIEW OF RASASHASTRA – THE SCIENCE OF PHARMACOTHERAPEUTICS OF METALS AND MINERALS

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ABSTRACT

Ayurveda is the ancient traditional wisdom that describes the medicinal uses of herbs, metals, minerals, and animal products. It is divided in to eight branches and hence termed as Ashtanga Ayurveda. Most of the formulations explained in Ayurveda samhitas were containing herbal drugs predominantly. The practice of using metals and minerals extensively in therapeutics were observed after the emergence of Rasashastra in the Sangraha period ie around 8th century. The detailed explanations of processing techniques involved in the conversion of a dhatu to its bhasma form is seen in the Rasashastra text books. The subject matter is vivid and exclusively a new idea that a hard metal or mineral can be transformed in to a bhasma form having micro to nano level particle size. The various equipments and heating arrangements used in this transformation were also an innovative thought process during that period. The different kalpanas were explained which involve unique method of preparations like Kharaleeya rasayana, Parpati rasayana, Pottali rasayana and Koopipakwa rasayana. Even though, they possess greater therapeutic benefits, there is a threat of serious adverse reactions if improperly used.

Keywords: *Rasashastra, Pharmacotherapeutics, Ayurveda, Rasayana, Metals and Minerals*

1. INTRODUCTION

Rasashastra is a branch of Ayurveda which is dealing with the pharmaceutical processing and therapeutic uses of metals and minerals. Even though, most of the formulations explained in Ayurveda were of herbal origin, the therapeutic potential of the metallic compounds was understood by the ancient sages of Ayurveda, long back. The references of Parthivadravya in Charakasamhita¹, the use of iron containing compounds in the treatment of Pandu, Silajatu administration in Prameha as Rasayana etc clearly establish the existence of metallic preparations in medicines during the period of Brihatrayees. But the processing techniques were not dealt in detail in those treatises. It was with the emergence of Rasashastra, these procedures of converting a hard rocky metallo-minerals to a therapeutically active compound became clearly understood. The philosophy behind Rasashastra is Raseswaradarsana which explains the attainment of moksha in one's own lifetime. Sage Nagarjuna, a budhist monk is considered to be the father of Rasashastra who was an expert in Vedha karma ie transmutation of lower metals like iron and copper to higher metals like gold with the help of Mercury.

The development of Rasashastra had three different phases namely- Dehavada, Dhatuvada and Chikitsavada. Dehavada dealt with the use of processed mercury to attain a stable body thereby attain knowledge and will ultimately lead to moksha. Dhatuvada was like the science of Alchemy which was aiming to eradicate poverty in this lively world with the help of processed mercury². These two branches are not

prevailing today as many of the knowledge regarding these subjects were lost in the timeline due to foreign invasion and many other factors. The existing branch of Rasasastra is Chikitsavada, which is dealing with the therapeutic use of mercury and metals and minerals and their processing techniques.

2. DISCUSSION

2.1 Paribhasha

To understand the science of Rasasastra, a scholar needs to understand the Paribhasha terminologies explained in this Science. Only after getting familiar with these technical terms, the understanding of Rasasastra becomes easier.

2.2 Dravya Paribhasha

The drugs and their categorisation are dealt under this heading. The substances used as medicines and those used for their processing are clearly explained.

Categories of Drugs- Maharasa, Uparasa, Sadharana rasa, Dhatu Varga, Ratna Varga, Sudha varga, Sikata varga etc

Categories of substances used in processing techniques- Mitra panchaka, Dravaka gana, Raktavarga etc

2.3 Karma Paribhasha

The techniques used for the conversion of a drug in to a therapeutically active compound is explained under this section.

Shodhana- Purification of drugs

Marana- Incineration of drugs

Bhavana- Grinding of a substance by adding a liquid medium till it completely dries up.

2.4 Knowledge of Yantra, Moosha, Puta and Koshti

Rasashastra describes various equipment that can be used in the mercurial processing and in the conversion of metals and minerals in to a biologically assimilable dosage form. They are termed as Yantra. It can be named differently depending on the shape, use and process accomplished using it. Eg; Dolayantra, Damaruyantra, Jaranayantra, Swedaniyantra etc.

Moosha are specially constructed vessels that are used to melt metals. It is termed as crucible. They are designed in such a way that they can tolerate higher

degrees of temperature. They are categorised depending on its shape, materials used for construction, etc. eg Vrintaka moosha, Vajramoosha etc

Putra is described to be the quantum of temperature used to incinerate a substance to convert it in to Bhasma or ashes. Based on the degree temperature attained, they are categorised as Mahaputra, Gajaputra, Varahaputra etc.

Koshti are the furnaces used in melting metals and minerals. They are classified according to the hardness of the substances that can be melted in those furnaces. Eg; Angara koshti, patala koshti, Gara koshti etc.

3. RASOUSHADHI AND ITS TYPES

The metals and minerals are converted in to four different forms.

They are as follows;

i. Kharaleeya rasayana

These are formulations prepared by grinding drugs in a mortar using a pestle by trituration. A prescribed liquid is added and grinded well till it becomes a smooth and soft paste. It can be rolled out in to pills or can be stored as powder and dispensed as powder form.

Eg Tribhuvanakirithi rasa, Hinguleswara rasa

ii. Parpati Rasayana

Here purified mercury is grinded and combined with gandhaka, Dhatu Bhasma etc and grinded well to form a black collyrium like substance known as Kajjali. It is taken in ghee smeared lohadarvi and melted. The mixture is poured in to a plantain leaf and pressed well in between cowdung platform. The mixture will convert in to a wafer form which can be break easily. Then it is powdered and stored.eg Rasa parpati, Panchamrita parpati

iii. Koopipakwa Rasayana

These are special formulation processed in Kachakoopi or glass bottle. Here the processing time can be extended up to 12 hours in an increasing gradient of temperature. The final product can be collected in the neck of the bottle or in the bottom of the bottle. The bottle is broken and the product is collected.

Eg; Rasasindoor, Sidhamakaradhwaja etc

iv. Pottali rasayana

These are formulations prepared in the form of a consolidated shape resembling an arecanut or in a cone shape. It includes a more controlled heating process by keeping the drug mixture in the form of a bundle made of soft silk cloth in a melted mixture of Gandhaka kept in a Valuka yantra or a sand bath.

Eg Rasapottali, Hemagarbha pottali etc

4. ADVANTAGES OF RASA MEDICINES

The main advantage of rasa drugs is their higher potency in small doses. It can be administered in different pathological conditions by simply changing the adjuvant or vehicle. They are having yogavahi property thereby they carry the drugs to their site of action very soon after drug administration. The rasayana guna of drugs are more evident in degenerative disorders. They are not having any distaste and easy to dispense and administer in the patients.

5. ADVERSE DRUG REACTIONS AND ANTIDOTES

The rasa drugs will cause serious adverse reactions if they are not processed properly or given in incorrect doses. It is well explained in Rasasastra textbooks that every drug is responsible for specific adverse reactions in the body if consumed in an improper manner. Hence utmost care should be taken while prescribing rasa drugs to a patient. The over-the-counter use of these drugs needs to be restricted and long term use also should not be promoted in clinical practice. Compounds containing Lead, Arsenic, Mercury etc should be administered under strict medical supervision of a clinician.

To overcome the adverse effects of these drugs, antidotes are also explained in Rasashastra text books. The specific antidote mentioned needs to be consumed for a prescribed period to get rid of the adverse drug reactions.

6. CONCLUSION

Rasashastra is the science of mercurials and metallo-mineral drugs. Their mode of use in therapeutics is detailed in this branch. They can be administered in purified form or in the form of Bhasma. The smaller particle size of dhatubhasma helps in their easy absorption and faster therapeutic action. The pharmaceutical processing techniques involved in Rasashastra are specific to each drug and it must be strictly followed accordingly. Standard operation procedure is to be constructed to ensure the quality in the final product. The raw materials should possess the prescribed qualities so that the final product is formed as per the guidelines. The Rasa medicines are a boon to a

physician due to their faster therapeutic action. At the same time, they will cause serious adverse effects and toxicity issues, if administered in an improper way.

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