



AMA AND EPIGENETICS MODIFIER IN THE MANIFESTATION OF VYADHI

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ABSTRACT

We know that before treating any *vyadhi*, it is essential to analyse the *sama* or *nirama* stage of *dosha*. The changes brought by *ama* can be considered abnormal epigenetic modification. The internal pathology produced in the tissues, which is not visible but can be analysed through changes happening in the body, can be co-related to epigenetic changes. Epigenetics can be modified by different factors such as diet, lifestyle, behavioural changes, infection, pollution, etc., and the pathological changes in epigenetics brought by these factors can be considered as brought about by *Ama*, as the formation of *Ama* is also influenced by these physical, psychological and environmental factors. Hence, a conceptual study is done to analyse the relation between *ama* and epigenetics.

Keywords: *Ama*, Epigenetics, *Sama*, *Nirama*, DNA

INTRODUCTION

On the grounds of various causes of disease, *Ama* is one such pathological factor responsible for producing a variety of diseases. *Dosha* is the one which governs all the body's activities right from conception till death. They are responsible for maintaining health, but as they are able to produce defects in all

the body elements including themselves, they are called *dosha*. When *ama* afflicts various doshas, they are termed as *sama doshas*. *Ama* is the undigested, harmful, toxic waste product, produced as a result of reduced *Agni* (digestive power). The stage of disease where *ama doshas* dominate is termed as *sama* stage

of illness and they are responsible for the manifestation of various diseases. According to Ayurvedic point of view, all diseases originate from *Ama dosha*. Before treating any *vyadhi* it becomes important to analyse whether dosha is in the *sama* or *nirama* stage. The changes brought by *ama* can be considered abnormal epigenetic modification.

Methodology

This conceptual study is based on a literature review of classical information, published research work and modern literature. A possible correlation has been made between collected information and presented systemically. The objectives of the study are to critically study and analyse the *ama* and to draw plausible relations with epigenetics.

Literary Study

The root cause of all diseases is called *Ama*¹. There are two varieties of *Ama*: *apakwa* (undigested) *anna rasa* due to diminished *jataragni*², and *apakwa rasa dhatu* due to reduced *dhatavagni*.³ Even others consider a combination of dust dosha with each other as *Ama*. This can be said just like mixing different kinds of *kodrava* (*Paspalum serobiculatum*) resulting in the formation of *visha* which is called as *ama visha*.⁴ The combination of *dosha* (*vata*, *piita*, *kapha*) and *dushya* (*raktadi dhatu*) with *apakwa anna rasa* or *apakwa rasa dhatu* is called *sama* and the diseases produced from this are called *sama roga*⁵ such as *sama jwara*, *sama atisara* etc. Hemadri explains that *sama rogas* can be produced either by *sama doshas* or *sama dhatus* or *sama malas*.

Ama is held as the undigested *anna rasa* having *durgandha* (foul odour), *avipakwa* (undigested particle) and *asamyuktam* (non-coalesced state, having more *picchila* / slimy quality characterized by weakness of the body).

Nidana of Ama

According to Charaka, *nidanas* (causes) of *ama* can be categorized as *Aharaja* (excessive intake of *guru*, *vishtambhi*, *shushka*, *vidahi*, *ruksha*, *picchila* *Gunayukta ahara*, *ajeerna bhojana*, *adhyashana*, *vishamashana* etc.)⁶ *Viharaja* (*ratri jagarana*, *vegadharana*,⁷ *diwaswapna*, *Dukhashayya*), *Manasika* (*Chinta*, *Shoka*, *Bhaya*, *Krodha*, *Uptapt*) and Other

(*desha*, *kala*, *ritu vaishamyam*-incompatibility of season, Improper management of *vamana*, *virechana* and *snehana*).⁸

Lakshanas of Ama: *Ama* produces different *lakshanas* as *Srotorodha* (obstruction in the channels), *Balabramsha* (feeling of weakness), *Gaurava* (feeling of heaviness), *Alasya* (laziness), *Anila Mudhata* (impaired activity of *Vata dosha*), *Apakti* (indigestion), *Nishtivana* (excessive salivation), *Mala sangha* (constipation), *Aruchi* (lack of taste), *Klama* (lethargy).

DISCUSSION

Till *anna rasa* remains in *amavastha* it is not able to absorb inside the *dhatu* (cells) and specifically it produces various diseases in the *udara pradasha* (abdomen) and when it starts to decompose, it produces various toxic substances which will be absorbed inside the tissues resulting in various disorders. Analysis of *ama* is a functional entity through its *guna* (qualities) and *lakshana* (signs and symptoms). *Ama* produces variations in the physiological aspects of *dhatu* (tissues) either by producing obstruction in the *srotus* or by spreading of *ama* in the form of toxic substances through all *rogamarga*, so that absorption takes place in the systems and thereby hindering systems in performing its normal functions.

Ama and Epigenetic changes

This internal pathology produced in the tissues which is not visible but can be analysed through changes happening in the body can be co related to epigenetic changes. Epigenetics is the study of changes occurring in the genes according to the changes in the behavior and environment. Unlike genetic changes, epigenetic changes are reversible, and they do not bring changes in the DNA sequence whereas it makes the body read DNA sequence in a different way i.e., epigenetics changes the gene expression. As these epigenetic changes will be brought by changes in diet, environment, behavior and lifestyle, it can be related to formation of *Ama*, which is brought by changes in *ahara*, *vihara* and *manasika* changes.

Epigenetic can be understood under 3 headings-

- 1) DNA methylation
- 2) Histone modification
- 3) Noncoding RNA

DNA methylation- Here a chemical group will be added to the specific regions of the DNA which blocks the gene from its expression. This chemical group can be removed by demethylation where methylation turns genes on, and demethylation turns genes off.

Histone modification- There is a protein called histones around which DNA wraps. When histones are tightly packed, proteins which read the gene cannot access DNA easily, so genes will be turned off and when histones are loosely packed, proteins can easily access DNA and genes will be turned on.

Noncoding RNA- Coding RNA is used to make proteins. Non-coding RNA helps control gene expression by attaching to coding RNA, along with certain proteins, to break down the coding RNA so that it cannot be used to make proteins. Non-coding RNA may also recruit proteins to modify histones to turn genes “on” or “off.”

If the above factors are obstructed, then normal functions of genes will not take place and it can result in manifestations variety of diseases. Epigenetics can be modified by different factors such as diet, lifestyle, behavioral changes, infection, pollution etc., and the pathological changes in epigenetics brought by these factors can be considered as brought about by *Ama*, as formation of *Ama* is also influenced by these physical, psychological and environmental factors. The formed *ama* can obstruct the DNA methylation, can bring about changes in the histones and non-coding RNA. Now a days, increasing pollution, incapability to obey the rules of sound body maintenance and lack of exercise and notorious diet, immunity is decreased. Because of this variety of disease produced. *Ama* production can result in a variety of diseases. Hence

giving treatment to turn *ama* into *nirama* can also bring epigenetic changes to its normalcy.

Result

Due to different factors *agni* will be reduced and there will be *apkwā* of *dhatu* which can be considered as epigenetic changes with reduced gene expression, followed by *dushti* in *amashaya* where *amashaya* can be considered as those areas of genes where epigenetic changes take place. Hence *ama* can be considered as a cause for epigenetic changes.

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