



## “STUDY SEVERITY OF MYOCARDIAL INFARCTION IN DIFFERENT DEHA PRAKRITI W.R.S TO TROPONIN –I”

### Ayurveda

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### ABSTRACT

In 21<sup>st</sup> century Coronary artery disease (CAD) is emerging as the major cause of mortality in developing countries world wide. So it is necessary to find the way to prevent CAD. *Ayurvedic* concepts can be applied successfully in prevention of such disorders. *Prakriti* is one such concept. It is the unique concept of *Ayurveda* which manifests special characteristics due to predominance of *Doshas*. *Ayurveda's* basic concept is to maintain health in healthy individual and then treatment of diseased. Thus healthy status can be maintained by maintaining normality of *prakriti*. By knowing one's *prakriti* and maintaining life style and dietary habits according to *prakriti*, health in healthy individual can be maintained. Myocardial infarction is the worst painful condition amongst the heart diseases.

In present work an attempt has been made to elaborate the severity of MI in different *Deha Prakriti* with special reference to Troponin-I.

### KEYWORDS

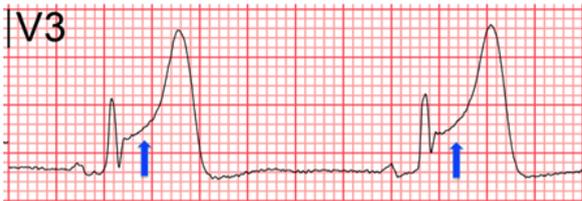
MLL - Morel-Lavallee Lesion Prakriti, MI, Troponin I

### INTRODUCTION

#### 1) Myocardial Infarction-

Myocardial infarction (MI), commonly known as a heart attack, occurs when blood flow decreases or stops to a part of the heart, causing damage to the heart muscle. The complete blockage of a coronary artery caused by a rupture of an atherosclerotic plaque is usually the underlying mechanism of an MI. A number of tests are useful to help with diagnosis, including electrocardiograms (ECGs), blood tests, and coronary angiography. An ECG, which is a recording of the heart's electrical activity, confirms an ST elevation MI (STEMI) if ST elevation is present. Myocardial infarctions are generally clinically classified into ST elevation MI (STEMI) and non-ST elevation MI (NSTEMI). There are a number of different biomarkers used to determine the presence of cardiac muscle damage. Troponins, measured through a blood test, are considered to be the best and are preferred because they have greater sensitivity and specificity for measuring injury to the heart muscle than other tests.

STEMI is a very serious type of heart attack during which one of the heart's major arteries (one of the arteries that supplies oxygen and nutrient-rich blood to the heart muscle) is blocked. ST-segment elevation is an abnormality detected on the 12-lead ECG.



It is the most fatal form of CAD that usually results from precipitous reduction or arrest of a significant portion of the coronary flow.

The diagnosis of acute MI is mainly based on three sets of data

- (1) Symptoms
  - (2) ECG changes
  - (3) Elevations of specific serum enzymes.
- a) The onset of chest pain is sudden and devastating with severe, constricting, crushing, burning, substernal or precordial pain that often radiates to the left shoulder, arm or jaw. Sweating, nausea, vomiting or breathlessness often accompanies with it.
  - b) ECG changes usually occurs from the onset of the attack. They consist of new Q waves associated or evolving ST-Segment of T-wave changes in the sub endocardial infarct. As the infarct evolves, the ST-segment normalizes and the T-waves invert.
  - c) Trop-I SGOT, lactic dehydrogenase (LDH) and creatine kinase (CK) levels are elevated.

#### What is Troponin I

Troponins are a family of proteins found in skeletal and heart (cardiac) muscle fibers that produce muscular contraction. Troponin tests measure the level of cardiac-specific troponin in the blood to help detect heart injury.

Normally, troponin is present in very small to undetectable quantities in the blood. When there is damage to heart muscle cells, troponin is released into the blood. The more damage there is, the greater the concentration in the blood. Primarily, troponin tests are used to help determine if an individual has suffered a heart attack. When a person has a heart attack, levels of cardiac-specific troponins I and T can become elevated in the blood within 3 or 4 hours after injury and may remain elevated for 10 to 14 days.

#### CONCEPT OF PRAKRITI

*Prakriti* in simple words is the “Structural and functional make” of a person on which his anatomy, physiology, thoughts, actions are dependent on.

For physician to restore health of a patient, knowledge of *Prakriti* is of much help.

To understand the *Prakriti* formation phenomenon *Charaka charya* has made a list of factors:

- 1) The first and most important factor determining the *Prakriti* of an individual is the dominant *Dosha* resulting after the union of paternal & maternal factors i.e. *shukra* & *shonit sanyog*.
- 2) The influence of dominant *Dosha* in that particular season
- 3) The diet taken by the mother is favourable for a particular *Dosha*.

When all these factors come together at this time of conception by their union one particular *Dosha* becomes dominant.

#### ORIGIN OF PRAKRITI

From the classical references available we can term that *Prakriti* is formed right at the time of conception itself. It is formed by the union of *shukra* and *shonita* depending on the dominance of the *Doshas* at the time of conception i.e. once a life form comes into existence.

*Prakriti* means “nature” or natural constitution of the human body. '*Pra*' means the 'beginning' or 'source of origin' and '*kriti*' means 'to form'. Put together *Prakriti* means 'natural form'. *Prakriti* word derived from *Prakaroti dhatu*. *Prakriti* means manifestation of special characteristics due to predominance of *Doshas* (*Vata*, *Pitta* and *Kapha* the functional component of body)

*Ayurveda* categorises human population in seven different *prakriti* i.e. *Ek Doshaj*, *Dwi Doshaj*, *Tri Doshaj* according to predominance of *Doshas*. Every individual should know about his/her *prakriti*, so that

one can adopt healthy lifestyle and dietary habits accordingly to prevent diseases.

Treating the patient as a whole, meaning intervention targeted toward complete physical, psychological, and spiritual well-being is the holistic approach of *Ayurveda* which makes this science a wonderful option in lifestyle disorders.

The susceptibility to different diseases depends upon the type of *Prakriti* constitution in an individual. Therefore, assessment of *Prakriti* analysis will not only help in understanding the physical and mental constitution of patient, but also plays a vital role in prognosis, diagnosis, treatment, and prevention of many complex diseases. *Prakriti* or a person's constitution of his/her *Tridoshas* also has a clear link to the susceptibility one has for chronic diseases.

#### TYPES-

##### A) *Daihi* *Prakriti*

Mainly 7 types of *Daihi* *Prakriti* are outlined in *samhitas*

1) *Ek Doshaj*

a) *Vata* *Prakriti* b) *Pitta* *Prakriti* c) *Kapha* *Prakriti*

2) *Dwi Doshaj*

a) *Vata-pitta* *Prakriti* b) *Vata-kapha* *Prakriti* c) *Pitta-kapha* *Prakriti*

3) *Tri Doshaj / Sannipataja* *Prakriti*

4) B) *Manasik* *Prakriti*

Indian philosophers measured the mind is having three qualities like *Satva*, *Raja* and *Tama*. All of them possess both good as well as bad qualities, according to their predominance in the fetal stage. *Manasik* *Prakriti* is divided in 3 main types and later in different types considering the dominance of *Dosha*.

*Manasik* *Prakriti* includes;

1. *Satwika* *Prakriti* 2. *Rajasika* *Prakriti* 3. *Tamasika* *Prakriti*

##### C) *Panchabhoutik* *Prakriti*

According to the dominance of any one *Mahabhuta*, *Panchabhoutik* *Prakrities* are formed during the union of *Surkra* and *Sonit*. Thus there are *Panchabhoutik* *Prakritis*. Such are-

1. *Vayavya* *Prakriti* 2. *Agneya* *Prakriti* 3. *Jaleeya* *Prakriti* 4. *Parthiva* *Prakriti*

5. *Nabhasa* *Prakriti*

#### *Prakriti* and lifestyle:

The principles of maintaining a proper well-being of the body and lifestyle are two folds- the observance of personal, moral, seasonal conduct and for maintaining way of life it must be opposite to *Prakriti* of an individual as the objective of the science is establishing equilibrium of the body. *Prakriti* based guidelines for diet and lifestyle result in healthy tissues and homeostasis of *Doshas*. Every healthy individual should know about his/her *Prakriti*, so that one can know which are the healthy lifestyle and eating habits for him, by adopting which he can maintain his healthy state and prevent any disease which may come. In general by knowing your *Prakriti* you can be aware of the do's and don'ts for daily routine and to be in healthy state you can be aware of, what type of disorders or ailments your body can have in future, so that you can change your lifestyle accordingly. According to type of *Prakriti*, *Ayurveda* has given some specific dietary regimens which are needed to be followed for prevention of various lifestyle disorders.

The term lifestyle incorporates *Ahara* (food habits) and *Vihara* (do's and don'ts in lifestyle). Lifestyle related disorders occur only because individual are not using or adopting way of life according to self-constitution of body. It is interesting to note that the *Ayurvedic* classics have emphasized the role of faulty lifestyle and inappropriate dietary habits in the causation and pathogenesis of diseases.

Therefore, it indicates that if a person wants to be healthy, he must design his lifestyle according to his *Prakriti*.

#### MATERIALS & METHODOLOGY:

##### 1. Type of Study-

a. The study is an observational type of study.

#### 2. Materials-

- For the present work 100 diagnosed patients of Myocardial Infarction were selected.
- Their ECG were collected.
- Their Troponin-I was done.

#### 3. Methods-

A study on inter-relation of CAD and deha *prakriti* according to *Ayurveda* as well as modern science was done from different *Ayurvedic* texts, modern texts, contemporary journals, publications and internet.

#### *Prakriti* assessment

*Prakriti* was assessed using a multiple-choice questionnaire which was designed on the basis of literature in *Ayurvedic* texts comprising objective questions related to the person's physical characteristics, psychological make-up and physiological habits. Each of the questions had three options to choose from referring to a property attributed to *Vata* (V), *Pitta* (P) or *Kapha* (K). The score obtained by a person for answers in the V, P and K domain were summed up and the person was identified as having a specific *prakriti* depending on scores obtained. When a participant scored  $\geq 50\%$  on a particular *dosha*, that was considered as the predominant *dosha*, whereas a score between 25%- 35% categorised the *dosha* as the secondary *dosha* in the *prakriti*

#### 4. Place of Study-

NABH Accredited Cardiac Institute, Nagpur.

#### 5. Type of Consent-

Consent in the language best understood by the patient.

#### INCLUSION CRITERIA:

- Patients having ST elevation Myocardial Infarction
- Patients of either sex with age group between 30-60 yrs.

#### EXCLUSION CRITERIA:

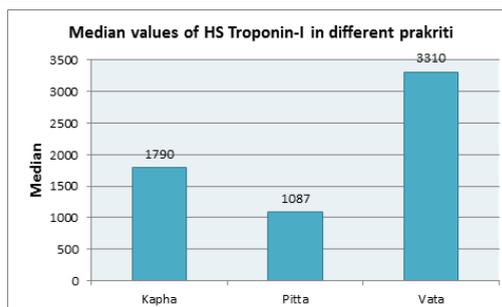
- Persons who are disoriented
- Persons with mental disorder
- Pregnant females and Lactating mother

#### OBSERVATION AND RESULTS:

Table No.1 Association of severity of High sensitivity Troponin-I and Type of *Prakriti*

(Kruskal-Wallis Oneway ANOVA Test)

HS Trop-I (normal value- <19 mg/dl)	Type of <i>Prakriti</i>			Kwallis statistics Chi2=3.409 P=0.1809, NS
	Kapha	Pitta	Vata	
Mean	8766.15	9166.31	13232.96	
SD	14112.04	15501.09	17309.76	
Median	1790	1087	3310	
Range	100-40000	125-40000	280-40000	



#### DISCUSSION

*Prakriti* (constitution) assessment is the chief factor for analysis of strength of patient. It is also emphasized that patients suffering from similar disease do not respond to similar treatment modality because of variation in their constitution. This stresses the fact that strategy of treatment modalities is different in diverging patients. So unlike Western medicine, which takes the view that all people are more or less same and treats the condition rather than the patient suffering from it, *Ayurveda* stresses the fact that treatment modalities are different in diverging patients and prescribes drugs which are antagonistic to *Prakriti*.

This study has made an attempt to investigate the severity of MI in different Deha *Prakriti* w.s.r to Troponin I

Present study is an observational study, wherein the probability of severity of MI in three major *Prakriti* has been surveyed and collected data has been critically analyzed. The collected data has been described in three groups and compared within these three groups.

The inferences made are based on small sample size and requires studies conducted on large sample size to derive a generalized statement. Hence, here the scholar has just stated the inferences that would likely help other researchers, scholars to undertake major researches further, for the further development of Ayurveda. The inferences are as follows-

The value of Troponin-I indicates the severity of MI. More the Troponin-I, more is the severity of MI. It was found that people with Vata dominant *Prakriti* suffered more severe form of MI.

#### **Vata Pradhan Prakriti-**

1. The people with Vata dominant *Prakriti* due to their *Ruksha Khara & Vishad Guna* have loose binding in their tissues, so when blood supply to part of myocardium is hampered the tissues suffer more damage.

Vata has similar characteristics which can be compared with psychosomatic functions. Therefore Vata *Prakriti* is considered to be more prone to malnutrition and stress related disorders. Stress affects us emotionally & mentally, and increases the risk of damage to heart

#### **Pitta Pradhan Prakriti-**

People with Pitta dominant *Prakriti* due to their *Ushma Guna* have high metabolic rate which prevents deposition of lipids & thus prevents damage to heart. Also *Drava Guna* of Pitta makes the tissues, muscles soft & smooth which prevents tissue damage.

#### **Kapha Pradhan Prakriti-**

People with Kapha dominant *Prakriti* due to their *Manda Guna* are slow in their activities leading to obesity which is one of the risk factors of MI. The *Shlakshna & Pitchil Guna* they are prone for hyperlipidemia which leads to hampered blood supply causing damage to myocardium

#### **CONCLUSIONS:-**

*Prakriti* and lifestyle disorders are closely correlated with each other and the lifestyle managed as per type of *Prakriti* will have significant role in prevention and management of lifestyle related disorders. Ayurveda has provided detail guideline in the form of *Dinacharya* and *Rutucharya* to maintain normal functioning of *Dosha* related with specific *Prakriti*. Few research works have established role of *Prakriti* in lifestyle related diseases however clinical studies on large number of subjects are needed for strongly elaborating and attracting the global attention towards the unique concept of *Prakriti*.

It was concluded that people with vata dominant *prakriti* suffered from severe form of MI.

Kaph dominant *prakriti* people suffered moderate form of and pitta dominant *prakriti* people suffered least severe form of MI with reference to Troponin.

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