

CONCEPT OF DOSHAS AND DUSHYAS IN DIFFERENT CARDIAC DISORDERS

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ABSTRACT

Ayurveda considers *hrudaya* (heart) as one of the vital organ of the body¹. As it is one among the *trimarams*, any injury to the *hrudaya* leads to severe complications & even death². Cardiovascular diseases are the largest cause of mortality. Overall, CVDs accounted for around one-fourth of all deaths in India in 2008. It will be the largest cause of death and disability by 2020 in India. It has been forecasted that 2.6 Million people will die from coronary heart disease, which constitutes 54% of deaths caused due to cardiovascular disease, making an impact to the society and the economy even more significant. Although many types of cardiovascular diseases are enlisted in contemporary science, only a few explanations are available in Ayurvedic classics. As heart diseases are the current burning problem in the society understanding the heart diseases with respect to *dosha* and *dushya* involved in them is very essential. An attempt has been made in this article for consideration of *doshas* and *dushyas* involved in the pathogenesis of various cardiac disorders.

Keywords: *Hrudroga*, Cardiovascular disease, *Dosha*, *Dushya*

INTRODUCTION

Hrudaya is an organ which draws blood from all over the body and then supplies it to all parts of the body. Embryologically, it originates from the essence of *rakthadhatu* and *kapha dosha*³. The shape of heart has been described as 'inverted lotus'⁴. *Hrudaya* forms the seat of *udana*, *vyana* & *prana vayu*, *sadhaka pitta*, *avalambaka kapha* & *ojas*. In *Ayurveda* the word *prana vayu* is used for oxygen and functional component of nervous system controlling respiration and deglutition. Oxygen is required for very existence of all cells, organs and life. It is vital for functioning of heart, mind and intellect. *Vyana vata* controls all the movements of body both voluntary and involuntary. It controls contraction, relaxation and rhythmicity of heart. *Sadhaka pitta* represents enzymes in the heart eg: SGOT,

aldose etc. whereas *avalambaka kapha* represents interstitial fluid in the heart and lungs⁵. Embryologically endocardium is derived from *rasa* (body fluids) and *rakta* (blood). Myocardium is derived from *mamsa dhatu* (muscular tissue) and pericardium is derived from *meda dhatu* (fatty and connective tissue). Each of these layers can be affected by one or all the three *doshas*.

Equilibrium of these *doshas* present in the heart is responsible for normal functioning of heart. Vitiating of any of them is invariably necessary for causation of heart diseases. In general *hetu* (causes) can be broadly classified as *doshaja hetu* (that causing *doshic* vitiating) and *vyadhija hetu* (those directly causing *vyadhi*). *Doshaja hetu* can be further classified as *shareerika hetu* (physical factors) and *manasika hetu*

(psychological factors). Improper treatment to any disease, trauma and improper purificatory therapies acts as *vyadhija hetu* for *hrudroga*. *Ruksha shushka alpa bhojana* and *upavasa*, *Ushna amla lavana katu kshara pradhana ahara* along with *madya sevana* and *guru snigdha bhojana*, *achesta* act as *shareerika hetus* for production of *vataja*, *pittaja* and *kaphaja* variety of *hrudroga* respectively. Whereas *shoka*, *krodha* and *achinta* (*kapha prakopa kara*) act as *manasika nidanas* in causing *hrudroga*⁶.

Pathogenesis of *hrudroga* begins with *hetusevana* causing *doshadusti* and *agnidusti*. Because of *mandagni* (*agnidusti*) there will be formation of *ama*, which in combination with vitiated *doshas* produces *samadoshas*. As there will be predisposition of *khaivaigunyata* in *hrudaya*, these *samadoshas* takes *sthana samshraya* in *hrudaya*. The presence of *samadoshas* causes improper nourishment of *hrudaya* due to *srotorodha* or *margavarodha* (obstruction to channels carrying nourishment) leading to improper functioning of *hrudaya* producing symptoms like *vaivarnyata*, *ruja*, *murcha*, *shwasa*, *shotha* and *atisweda*. Thus causes *hrudroga*.

In *Charaka Samhitha trimarmiya chikitsa*, explanation regarding general signs and symptoms of *hrudroga* is stated as *vivarnyata* (cyanosis), *shwasa* (dyspnoea), *shotha* (oedema) and *atisweda* (sweating), *murcha* (syncope) & *ruja* (chest pain/chest discomfort)⁷. These *samanya lakshanas* very well matches with general signs and symptoms of cardiac diseases as mentioned in contemporary science.

CLASSIFICATION OF VARIOUS CARDIAC DISEASES

The general classification of diseases as explained in *Sushruta Samhita* can be applied to various cardiac diseases also. It is as follows:

- *Bijadoshaja* (*adibalapravrutta*)- hereditary cardiovascular disorders
- *Douhrudaapacharaja* (*janmabalapravrutta*)- congenital cardiovascular disorders
- *Sanghatabalapravrutta*- heart disease due to trauma.
- *Upasargaja*- infective cardiac disorders
- *Doshabalapravrutta* - *vataja*, *pittaja*, *kaphaja*, *sannipataja*

Bija doshaja vyadhis are those which manifest due to morbidity of *shukra* and *shonita* by vitiated *vatadidoshasi*.e abnormal genome. It is nothing but hereditary cardiac diseases. These are the cardiac problems that run through the family. For eg: Brugada syndrome, Coronary artery disease, cardiac amyloidosis etc. One can also inherit risks for high cholesterol (hyper lipidemia), diabetes, high blood pressure (hypertension) and obesity, which further acts as potential risk factors for the manifestation of various cardiac problems.

Douhruda apacharaja vyadhis occur due to unwholesome behaviour of the mother during conception and pregnancy. This can be considered as congenital heart diseases. It is a problem with the heart's structure and function that is present at birth. For eg: Tetralogy of fallot, Total anomalous pulmonary venous return, Transposition of the great vessels, Aortic stenosis, Atrial septal defect (ASD), Ventricular septal defect (VSD), Patent ductus arteriosus (PDA) etc.

Prime *dosha* involved in *bija doshaja* and *douhruda apacharaja vyadhi* is *vatadosha* because *vatadosha* is responsible for all *garbha vikruti*⁸.

Sanghata bala pravrutta vyadhis are those diseases which manifest due to assault or injury. **Upasargaja vyadhis** are those cardiac disorders caused due to infection for eg: Endocarditis, Myocarditis, Pericarditis etc.

Doshabala pravrutta vyadhis are those manifesting due to disturbed *sharirika* and *manasadoshas*. The causative factors for these are incompatible dietetics and erratic activities. They can be further classified as *Vatajahrungroga*, *Pittajahrungroga*, *Kaphajahrungroga* and *Sannipatajahrungroga*.

Vataja hrudrogas are those cardiac disorders manifested due to deranged *prana* or *vyanavata*. It is characterized by pain or alteration in the normal rhythmicity of heart. Diseases like angina pectoris, aneurysm, cardiac arrhythmia and hypertensive cardiomyopathy can be considered as *vatajahrungroga*. In addition it can be viewed that *vataja* diseases of endocardium leads to valvular affections like aortic and mitral stenosis and regurgitation. *Vataja* disorders of myocardium include atrophy or fibrosis of heart muscle and that of pericardium include constrictive pericarditis. *Vataja* disease of coronaries gives rise to angina pectoris.

Angina pectoris can be compared to *Hrudshoola* as described in *Sushruta Samhita* where it is explained that *kapha-pitta avarodha* leads to *vataprakopa*. This *prakupita vata* further vitiates the *rasa dhatu* thus leading to *hrut shola* which is characterized by *teevra shola* (severe pain in heart) & *uchwasaavarodha* (difficulty in expiration). A similar explanation is available in contemporary science regarding angina pectoris. Pathogenesis involved is vitiated *vata* leads to spasm of coronary vessels which results

in temporary ischemia of heart and gives rise to severe pain. The predisposing factors being thickening of coronaries due to *kapha* (atherosclerosis) or *pitta* (inflammatory) and abnormalities of *rasa* & *raktha* (hypercholesteremia).

Aneurysm is an abnormal widening or ballooning of a portion of an artery due to weakness in the wall of the blood vessel. Aneurysm may be considered as *gulma* as it is explained as '*sparshaupalabyaparipindita granthi*'⁹ (palpable mass) and '*hrutnabhiantaraachalagranthi*' (immobile mass between heart and umbilicus). Also *gulma* is among *raktapradoshaja vyadhi*¹⁰ (disease caused due to vitiated blood). Some even consider it as *sirajagranthi*, the key feature of it being *vruttagranthi*. These aneurysms are caused by weakness of *Mamsa dhatu* (muscular tissue) and an increase in *Vatadosha*.

Cardiac arrhythmia is characterised by abnormal electrical activity in the heart. The heartbeat may be too fast or too slow or even irregular. A heart beat that is too fast is called tachycardia and a heartbeat that is too slow is called bradycardia. *Vyanavata* controls all the activities of the heart including its rhythm. Disturbance of *vyanavata* results in disturbance in the normal rhythm of heart. Its association with *pitta* leads to tachycardia & with *kapha* leads to bradycardia.

Hypertensive cardiomyopathy occurs when hypertension is sustained for an indefinite period of time leading to hypertrophy of the left heart ventricle. The most common symptoms include Chest pain during exercise, difficulty in breathing during exercise. Additional symptoms of mild hypertensive cardiomyopathy include:

loss of appetite, mild fatigue & increased Urinary frequency. Symptoms of severe hypertensive cardiomyopathy include: palpitations, fainting, severe difficulty in breathing, pedal oedema, chest congestion, wheezing. *Ayurveda* views that *rasa dusti* and *vyanavata dusti* are responsible for hypertension and hypertensive cardiomyopathy as *vata dusti* in initial stage which further involves *kaphadosha* in the later stage.

Pittaja hrudrogas are the cardiac disorders associated with inflammation. Those effecting endocardium cause endocarditis, myocardium cause myocarditis and that of pericardium cause pericarditis. Pericarditis associated with fluid accumulation (pericardial effusion) can be viewed as *pitta* associated with *kapha* and stiffness (constrictive pericarditis) with *vata*. Also *pittaja* disease of coronaries gives rise to specific and non-specific arteritis.

Kaphaja hrudrogas are the cardiac diseases caused by derangement of *kaphadosha*. Diseases like endocardial fibroelastosis, cor pulmonale, coronary artery disease and ischemic heart disease can be considered as *kaphaja hrudrogas*. The same can be viewed as *kaphaja* disease of the endocardium includes endocardial fibroelastosis. *Kaphaja* disease of myocardium includes hypertrophy of heart muscle as well as storage diseases of heart like glycogen storage diseases and that of pericardium includes thickening of pericardium. *Kaphaja* disease of coronaries gives rise to atherosclerotic changes.

Endocardial fibroelastosis is a disease characterised by pronounced, diffuse, thickening of the ventricular endocardium and presents as unexplained heart failure in infants and children. The symptoms being

breathlessness, cough, wheezing, feeding difficulty, excessive sweating, failure to thrive & recurrent chest infections. Here *kaphadosha* vitiating *rasa* and *raktha* which forms the endocardium may be explained as the prime factor causing Endocardial fibroelastosis.

Cor pulmonale is enlargement of the right ventricle of the heart as a response to increased resistance or high blood pressure in the lungs (pulmonary hypertension). When there is presence of lung disease like emphysema, COPD or pulmonary hypertension- the small blood vessels become very stiff and rigid. The right ventricle is no longer able to push blood into the lungs and eventually fails. This is known as pulmonary heart disease. Symptoms are shortness of breath, wheezing, ascites, raised JVP, hepatomegaly, pedal oedema. From an Ayurvedic perspective, there is *kapha avarana* leading to *vata prakopa* & thus manifestation of the disease.

Coronary artery disease is the result of the accumulation of atheromatous plaques (*kaphavargeeyadravya*) within the walls of the coronary arteries. This causes provocation of *vata* due to *margavarodha*. Symptoms are Chest pain or discomfort, also called angina, Shortness of breath when exercising or during any vigorous activity, a fast heartbeat, Weakness, dizziness, nausea & increased sweating. *Ayurveda* views atherosclerosis according to the symptoms. Degeneration of the blood vessels is caused by increased *vata* in the vessels, which make them hard, thin, dry and rough. Deposits of lipids and calcium represents deposition of *kapha* in the degenerated vessels resulting in irregular thickening of blood vessels, so from Ayurvedic point of view, it can be said

that this disease is caused by vitiation of *kaphadosha* associated with *vata doshain raktavahasrotas* (blood vessels).

Ischemic heart disease or myocardial ischaemia, is a disease characterized by reduced blood supply to the heart muscle, usually due to coronary artery disease (atherosclerosis of the coronary arteries). It presents as Angina pectoris (chest pain on exertion, in cold weather or emotional situations), Acute chest pain: acute coronary syndrome, unstable angina or myocardial infarction ("heart attack", severe chest pain unrelieved by rest associated with evidence of acute heart damage), Heart failure (difficulty in breathing or swelling of the extremities due to weakness of the heart muscle) and even as Heartburn. *Ayurveda* views it as a *kapha medo vrudhi* causing *margavarodha* pathology. Due to *santarpaneeya nidana* and *virudha ahara* there will be *kapha medha vrudhi* which causes *shonita abhishyandana*. Here *shonita pradhushana* can be considered as accumulation of excessive fat in blood vessels (dyslipidemia) which causes *rasa-raktamargaupalepa* and then *dhamanipraticaya* further leading to *rasa raktamargavarodha*. This *margavarodha* when takes place in heart causes ischemic heart disease.

Tridoshajahrudroga are the cardiac disorders which has multifactorial origin. There will be involvement of all *tridoshas* with predominance of one or two *doshas*. Congestive heart failure and Rheumatic heart disease can be considered as a *tridoshajahrudroga*.

Congestive heart failure (CCF) is a condition in which the heart's function as a pump is inadequate to deliver oxygen rich blood to

the body. Heart failure may develop suddenly or over many years. The symptoms of congestive heart failure vary, but can include fatigue, diminished exercise capacity, shortness of breath, and swelling. *Ayurveda* recognises that a mild disturbance in the balance of *tridoshas* in the heart muscle results in the impairment of the cardiac function, which is usually compensated by augmenting the heart rate and increasing the force of ventricular contraction. Marked disturbance in the balanced state of *tridoshas* in the heart muscle give rise to uncompensated heart failure.

Rheumatic heart disease can be viewed as a *kaphapradhanatridoshajavyadhi*. The symptoms of this disease correlate with that of *amavata* such as *dourbalayata* (fatigability due to low cardiac output), *gatrastabdata* (due to arthritis, soft tissue & muscular inflammation) *aruchi* (anorexia) which occurs as a prodromal symptom of rheumatic fever, *allasya* (lethargy) also due to fatigability, *jwara* (low grade continuous fever), *shoonangata* (swelling of joints) due to polyarthritis.

Upasargaja or Krimijahrudroga is the cardiovascular disease caused due to parasite, viral or bacterial infections. The following conditions may be considered for *krimijahrudroga*- Infective Endocarditis caused from infection by different microorganisms and by fungi, pseudocyst of *Toxoplasma gondii* in muscle fibre of the heart causing myocarditis, hydatid cyst of the heart caused by *Echinococcus granulosus* infestation and acute infection by *trypanosomacruzi* which terminates into myocardial infarction within 20 to 30 days.

Chronic form of this is characterised by disturbed cardiac rhythm (heart block and John Vorstermans Adams syndrome). This occurs because of T. cruzi, which resides in the heart muscle during its infestation in the body.

DISCUSSION

The heart being a muscular organ derives its nutrition from *rasa*, its oxygen from *rakta* and its vital energy from *ojas*. Its movements are controlled by *vyanavata*. *Sadhaka pitta* represents intracellular enzymes in the cells of the heart and helps it to digest and utilise the nutrients and oxygen. *Avalambakakapha* represents the intracellular and interstitial fluid of the heart and chest. Any imbalance in these basic elements disturbs the normal function of the heart and there by causes heart diseases.

Rasa carries all the essential nutrients to all the cells of the body. *Rasa kshaya* symptoms are encountered in dehydration or state of shock. The sluggish circulation of both these states acts as a precipitating factor for coronary thrombosis. Red blood corpuscles carry oxygen to all tissues. Increased blood volume can lead to hypertension and gives rise to fullness of veins which is a sign of congestive cardiac failure. Acute blood loss may lead to shock. And chronic anaemia can give rise to heart failure. All these are resultant of *raktadusti*. As heart is a muscular organ and factors which affect muscular tissue can affect the heart. Myocarditis, hypertrophy of heart owing to glycogen storage etc as well as tumour of the heart arises due to vitiation of muscular tissues of the heart. Poor contraction of heart leads to congestive cardiac failure.

CONCLUSION

No disease occurs without vitiation of *doshas* and heart disease is not an exception. *Avalambakakapha*, *pranavata* and *vyanavata* are the prime *doshas* taking part in the pathogenesis of *hrudroga*. *Dushyas* involved are the *rasa*, *rakta* and *mamsa*. Heart diseases can be classified according to sushruta's *svyadhiparibheda*. As complete establishment of etio-pathogenesis of the disease *hrudroga* is not available in Ayurvedic classics, it is inevitable to understand and manage *hrudroga* with the application of concept of *dosha* and *dushya*.

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Source of support: Nil

Conflict of interest: None Declared