



Review Article

AYURVEDIC REVIEW ON DIAGNOSIS AND MANAGEMENT OF *HRIDROGA* WITH THE SPECIAL REFERENCE TO CARDIOVASCULAR DISEASE

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ABSTRACT

According to *Acharya Sushruta*, in the presence of the etiological factors the *Dosha* get vitiated and provoked all the three *Doshas* spread out of their place and vitiate the *Rasa Dhatu* in the heart. Vitiating *Rasa Dhatu* (body lymph/chyle) manifestation of various types of pain is being produced, which is called *Hridbadha* or *Hridroga*. Cardiovascular disease (CVD) is the most important cause of global death, accounting for 17.3 million deaths per year, a number that is expected to grow to more than 23.6 million by 2030. Diagnosis and treatment of *Hridroga* through Ayurveda and its modern correlation is done in present article. Mode of Action is *Hridya* drugs promoting heart health. Improper diet (excessive intake of *Kshar*, *Lavana Rasa*, *Virudabhajana*) and *Vegadharna*, *Chinta*, *Krodha* etc. are few among the many causes of *Hridroga*. In understanding symptomatology of cardiovascular disorder, it should be noted that *Vaivarnya* (*Panduta/Shweta/Shyava*) can be correlated to pallor and cyanosis, *Murccha* to Syncope, *Kasa* to cough with or without Hemoptysis, *Shwasa* to breathlessness or dyspnea, *Ruja* to chest pain or discomfort. Drugs used in various formulations in *Hridroga* have properties like *Pachana*, *Deepana*, *Hridya*, *Anulomana*, *Rasayana* and *Krimihara*. So, in present article an effort has been made to explain the heart disease and its management through Ayurveda as well as modern medicine.

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INTRODUCTION

The body is vehicle on which one rides to their destination. If body is weak or sick one can't function properly and cannot achieve the goals of life. According to Ayurveda, *Pranaeshana* is most imperative *Eshana* in all three *Eshanas*. Therefore, good health is very important. *Hridaya* (heart) has been described as *Pranayatna*, included amongst three main *Marma* (vital organ) of the body^[1]. *Hridya* (heart) is the seat of *Atma*, *Indriya*, *Mana*, *Oja* and *Mola* (origin) of *Pranavahaya* and *Rasavahaya srotas*, root often big vessels. *Hridroga* is a dreadful disease that is multifactorial in its origin. *Hridroga* is the disease of *Marma* (*Hridaya*), which is the seat of many vital activities.

Cardiovascular disease (CVD) is the most important cause of worldwide death, accounting for 17.3 million deaths per year, a number that is

expected to grow to more than 23.6 million by 2030^[2]. By 2020, heart disease and stroke will become the world's leading causes of both death and disability worldwide, with the number of deaths expected to increase to over 20 million per year, and to over 24 million a year by 2030. CVDs are the number one cause of death globally: more people die from CVDs annually than from any other cause. An estimated 17.9 million people died from CVDs in 2016, accounting for 31% of all deaths globally. For such deaths, 85% are caused by heart attack and stroke. About three quarters of CVD deaths take place in low- and middle-income countries. Out of the 17 million premature deaths (under the age of 70) due to non-communicable diseases in 2015, 82% are in low- and middle-income countries, and 37% are caused by CVDs^[3].

According to WHO out of 17 million premature deaths (under age of 70), 37% are caused due CVDs. Ayurveda texts have described extremely valuable information related to cause, symptom, prevention and management of heart disease along with cardio tonic drugs also. Thus, the compilation of scattered information available in Ayurveda on *Hridroga* and its modern connection is of significant importance at present.

AIM AND OBJECTIVE

- 1) Diagnosis and treatment of *Hridroga* through Ayurveda and its modern correlation
- 2) Mode of Action of *Hridya* drugs promoting heart's health.

Hetu (Etiology) of *Hridroga*

The Etiological factors of *Hridroga* are classified in to three parts:

Aharaj (dietary factor)

Excess intake of *Kashaya* (astringent), *Tikta* (pungent) *Rasas*, *Ruksha* (dry and rough) food articles and starvation causes the vitiation of *Vata*. *Atimatra Sevana*, *Viruddha Bhojana*^[4], *Adhyasana*, *Ajeerna Bhojana* and *Asatmya Bhojana* etc. are responsible for the vitiated mainly *Vata-Kapha dosha* and excessive production of *Dushita Rasa*. If we review the pathogenesis, vitiation of *Vata* and *Rasa* are considered to be predominantly involved in the pathogenesis of heart disease. Some factors vitiate *Vata* and some vitiate *Rasa* and ultimately both are involved.

Study on 'Association of *Prakriti* with CVD, inflammatory markers and insulin resistance', was concluded that there is dominance of *Vata-Kapha Prakriti* in risk factors of CVD^[5]. According to modern science, it is also obvious that low calorie diet and unbalanced diet affect the overall nutritional status of the body and malnutrition occurs. This results in deficiency diseases, which are quite common. 'Beri-Beri' is one of the important examples leading to cardiac involvement due to deficiency of Thiamine (vitamin B1). Thiamine is considered a clinically important factor in heart function, and its deficiency has been reported to cause heart failure^[6-8]. Due to the complex clinical presentation and to the lack of diagnostic tests, thiamine deficiency is still being missed, especially among non-alcoholic patients^[9]. On the other hand rich nutrition diet and over eating leads to obesity and coronary atherosclerosis which is a primary precursor for the development of ischemic heart disease.

Viharaja Nidana (Lifestyle Related)

Vyayama, *Adhikya*, *Ratha-Kshobha*, *Diwaswapna*, *Maithuna*, *Vegadhrana* etc. are the *Viharaja Nidana* of *Hridroga*. If a person violates these principles of exercise and indulges in strenuous exercise, he is likely to develop cardio-respiratory symptoms like hemoptysis, dyspnoea, cough etc^[10]. Medical or surgical illness is good correlation from *Gada Atichara* described in *Chraka Samhita*^[11]. *Acharya* explains *Gada Atichara* means "*Roganamasamyakupchar*" (Improper treatment of disease). When principles of treatment are violated like when *Virechana* and *Vamana Karmas* are not used properly, they may produce excessive diarrhea or emesis respectively. Both these conditions may lead to hypovolemia and electrolyte imbalance in body resulting in cardiac rate and rhythm disturbances. Similarly, if *Basti Karma* is not done properly it causes *Hritprapti* (feeling of friction like pain) in heart.

Manasika Nidana

Chinta (Excessive worry), *Bhaya* (Fear), *Trasa* (Terror), heavy exertion or mental stress have trigger plaque disruption, leading to MI^[12]. According modern science mental stress increases catecholamine secretion, which may lead to hypertension, hyperlipidemia and plaque rupture resulting in atherosclerosis and Coronary artery disease.

Purvarupa of *Hridroga*

In Ayurvedic classics, regarding *Purvarupa* of *Hridroga* has not been described. The pathological process may progress gradually in the heart without much disturbance in its structural and functional integrity and when the disturbances starts affecting the heart, symptoms of *Hridroga* appear immediately giving no time for prodromal symptoms to develop so *Acharya* did not explain the *Purvarupa*.

Samanya Lakshana of *Hridroga* (common symptom of heart disease)

Vaivarnya, it is localized or whole-body discoloration. *Murcha* (syncope), *Rasa-Raktavikshepana* of *Hridya* is hampered in *Hridroga*. *Prana* and *Pranayatnani* is not proper nourishment, hence *Murcha* may occur. *Jwara* (Fever), *Kasa* (cough) & *Shwasa* (Dyspnea), *Hikka* (Hiccough), *Asyavairasya* (Change of taste), *Pramoha* (Confusion), *Chhardi* (Vomiting), *Kaphotklesha* (Expectoration), *Ruja* (Pain), *Aruchi* (Tastelessness), *Trishna* (Thirst)^[13] may also occur. It is only one symptom of *Udakavahastrotasdushti* which occurs in *Hridroga*. Excessive *Vata* also causes this symptom. In the case of severe mitral stenosis

malar flush with pinched and blue faces present in patients. Breathlessness or fatigue, dyspnea during daily routine work, cough present when lying down at night in all cardio-myopathies^[14]. Due to low output, cerebral is under perfusion in heart disease that is the cause of syncope^[15]. Nausea and vomiting occur in more than 50% of patients with transmural MI, modest fever (up to 38°C) is present due to muscle necrosis in heart disease. Old age is the *Vataprokpaawastha* of life so *Vatapradhanvyadhi* mainly occurs in old age. In *Vatikahridrogachala* and *Laghu, Kharaguna* of *Vata* is responsible for calcification of arterial vein i.e., Atherosclerosis. Modern science essay arteriosclerosis is generally found in old age. The *Lakshana* of *Kaphaj Hridroga* are *Ashmavruttam, Bharikamuram* etc. showing similarities symptom with chest heaviness like a stone is on chest, as seems in MI (myocardial infarction).

Samprapti

Hridaya is considered as *Moola* of *Rasavahasrotas, Pranvahasrotas* and *Ashraya* of *Dashdhamnis*. Acharya Susruta, Bhavaprakash and *Madhavnidana* described in the *Samanyasamprapti* of *Hridroga* is specially mentioned *Dushti* of *Rasa dhatu* while Charaka enlisted *Hridroga* in *Rasa nimmitja Vikaras*. When the pathology arises in the *Rasa dhatu* or *Hridaya*, it directly affects *Rasa-vikshepanakriya* (circulation of *Rasa-Raktadhatus*)^[16] at the level of whole body because the *Hridya* is the seat for *Prana* and *Vyana Vayu, Sadhaka Pitta* and *Avalanbaka Kapha*. According to Acharya Sushruta, in the presence of the etiological factors like *Aharjanidana* and *Viharajanidana* leads to vitiated *Avalanbaka Kapha, Pachka pitta, Vyanavayu* and *Mansikanidana* vitiates *Sadhaka pitta* affecting *Prakritik karma* of *Hridaya*. These effect the *Adhya Ahara* rasa formation that is affecting *Rasa dhatu* and its *Prakirit karma* of *Preenanm* and *Tarpna*. These etiological factors cause *Agnimandhya*, abnormal formation of *Rasa dhatu* caused increased formation of *Mala Rupa kapha*, increased *Kleda* leads *Ghanata* and *Pichhilaguna* of *Kapha* hampers *Prakritagati* of *Tridosha*. *Srotosang* leads to *Sanchya* of *Vaikritadosha* and *Mala* in *Rasa, Rakta, Medavahasrotas*. This *Srotosanga* which could be interpreted as Atherosclerosis and plaque formation in CVS if continues for a longer time cause *Srotorodha* and *Vimarga Gamana* of *Doshas* in *Srotas* affecting the *Moola* of *Srotas* i.e. *Hridaya* causing *Hridroga*.

According to contemporary science, over the course of lifetime starting from early childhood to the adulthood, due to one's bad food habits like

eating junk, fatty foods, fried, spicy food materials. Foods causes disruption of smooth internal lining of arteries gradually due to clogging with clumps also known as atherosclerosis. These atherosclerotic plaques caused hardening or narrowing of the arteries which plaques suddenly ruptures forming a blood clot around the plaque of rupture. As a result, the flow of blood containing oxygen and nutrients to the heart muscle is choked off (myocardial ischemia). Such reduced blood supply to the heart causes improper functioning of heart, hence comparison at the pathology of both streams the similarity of pathogenesis cascade of hardening and narrowing of artery supply blood to heart can be considered as *Khavaigunya* at *Hridaya Marma*.

Chikitsa (Management)

Nidana Parivarjanama

Faulty dietary habits, smoking and excessive alcohol consumption, excessive physical exertion, emotional stress, *Shrama, Vegavrodha*, and *Atichintana, Uchabhashan*, anxiety and grief should be avoided. If a person persistently exposed to these factors, his mental and physical health deteriorates leading to various diseases including *Hridroga*.

Use of Hridya substance

Hridayamtarpayatihridiyobhavati

Anything which has *Tarpana* (nutritive) effect on *Hridaya* is said to be as *Hridya*.

Hridya Ahara

Human being who takes food beneficial for body there will be no need for medicines and without good dietetics medicines will be ineffective^[17]. Unhealthy diets and physical inactivity are main risk factors for the major non-communicable diseases including cardiovascular diseases, cancer and diabetes, according to WHO^[18]. Acharya Kashyapa said *Ahara* is *Mahabhaishjya. Godhoum, Piyush, Rasala, Navneet, Vilapika, Sauvarchallavana, Aanupajala, Alabu, Dadim, Kharjura, Narikelajala, Mamsarasa, Edaka-Lavakamamasa, Shashkuli-Shilindhramatsya, Purana madira* are beneficial for *Hridaya*^[19].

Hridya Aushdha

Hridyamahakshaya, Arjuna, Rasona, Kankola, Gojiviha, Tulsi, Chakarmarda, sunthi, Yavani, Shigru, Bakuchi, Chorak, katuki, Pipali, Shatavari, Erandataila, etc.

Hridyamahakshaya group of drugs are mainly *Amla Rasapradhana* (dominating) and rich source of Vitamin C. Some modern studies proved, Vitamin C have potent antioxidant in addition to good stress buster and to increase HDL and reduce

LDL to considerable levels^[20]. Treatment with high-dose sustained-release ascorbic acid palliates blood pressure, cortisol, and subjective response to acute psychological stress^[21]. Treatment with; *Mangifera indica* leaf extract caused a significant decrease in the levels of CK-MB, CK-NAC, LDH, AST, ALP, and ALT enzymes suggesting the membrane stabilizing and reparative action of the extract preventing damage to the rat myocardium^[22]. The anti-coagulant activity of *Artocarpus lakoocha* extract shown, the re-calcification time had significantly increased and the fibrinolysis had increased resulting in a 50% decrease in the fibrin. Oxidative stress is the underlying cause of many diseases like diabetes, cardiovascular diseases and cancer.^[23] According to a research study stated in American journal of clinical nutrition, *Punica granatum* being rich in antioxidants can prevent the oxidization of LDL 'bad' cholesterol.^[24]

Shodhana Karma

Vamana Karma: *Vamana Karma* is described particularly in *Kaphaja Hridroga*.

Virechana Karma: In *Pittaja* and *Kaphaja Hridroga* related with *Pitta Dosha*, *Krimija Hridroga*, *Virechana Karma* is useful^[25].

Basti Karma: It is the best *Upkaram* for vitiated *Vata Dosha*, which is always, affected in diseases of vital organs (*Marmas* like heart) hence different types of *Basti* has indicated in all types of *Hridroga* and particularly in *Vataja Hridroga*^[26] e.g. *Taila Basti*.

Samshamanachikitsa

- ✓ *Pushkarmoola*, *Tila Taila*, *Sovarchala Lavana*, *Hingu*, *Mrigshringa*, *Rasona*, *Madya*, etc. are very effective in *Hrichchhoola*.
- ✓ *Jivaniya*, *Triyushanadi*, *Vasa*, *Chitrakadi Ghrita* and *Arjuna Ghrita*, *Vallabhaka*, *Swadanshradya*, *Baladya Ghrita* is used *Hridroga*^[27].
- ✓ *Draksha+Haritaki* with *Sharkara*, *Sheetaljala*, *Ghrita* is used mainly *Pittaja Hridroga*.
- ✓ *Kushtha+Vidangachurna* with the *anupana* of *Gomutra*, *Vidanga+ Dhanyamla /Yavanna* are useful *Krimija Hridroga*.
- ✓ *Haridra* with *ushnajala* taking at night useful in *Krimija Hridroga*.

Hridaya marmghata chikitsa

Hinguchurna+Lavana+lemon juice or other sour material/*Hinguchurna+Lavana+other Hridya-aushadha / Hinguchurna+Sharkara +Sthiradi Panchamula/ Hinguchurna+Bilvadi Panchamula*^[28]

Haritaki+Nagar+Puskarmula+Hibera+Hingu and *Pushakarmula+ Shunthi+ Shati+Kshara+Lavana* with *Sarpj*^[29].

DISCUSSION

Extensive description of *Hridroga* is available in various texts including etiology, symptoms and management. Comparison in between the common signs and symptoms described in Ayurveda and modern science branch of cardiology, it should be noted, where *Vaivarnya (Panduta/Shweta/Shyava)* can be correlated to pallor and cyanosis, *Murccha* and *Syncope*, *Kasa* to cough with or without Hemoptysis, *Shwasa* to breathlessness or dyspnea, *Ruja* to chest pain or discomfort. These *Samanya Lakshanas* have an almost perfect association/ concordance with modern cardiological signs and symptoms in Statistical significance. *Agnimandhya* resulting in the formation of *Amadosha* at different levels, It can be correlated to abnormal collection of fats clumps, cholesterol and other material in arteries by which may cause gradual hardening or narrowing of internal lining disrupting its smooth structure, which is denoted as atherosclerotic plaques. According to *Chakrapani* all the measures intended to diminish the aggravated *Vata* and *Kapha* will cure *Hridroga*. As *Amla rasa* is composed of *Tej (Agni)* and *Prithvi Mahabhutas*, it is *Agneya* in origin^[30] Due to this it performs the function of *Rasadhatvagni-deepana* (stimulates *Rasadhatvagni*) and also helps to bring *Samanavayu* in its normal state and pathway. This *Samanavayu* in its healthy state executes the task of *Agni-sandhukshana* and helps to breakdown the pathophysiology of *Hridroga* by means of *Deepan karma*. Ayurveda offers satisfactory management strategies for CVD through preventive and curative approach.

CONCLUSION

So, in present article an effort has been made to explain the heart disease and its management through Ayurveda as well as modern medicine. Improper diet (excessive intake of *Kshar*, *Lavanarasa*, *Virudhbhojana*) and *Vegadharna*, *Chinta*, *Krodh* etc. are the many causes of *Hridroga*. *Hridya dravyas* play a key role for healthy heart. Drugs used in various formulations are possessed of properties like *Pachana*, *Deepana*, *Hridya*, *Anulomana*, *Rasayana* and *Krimihara*.

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