

AN AYURVEDIC REVIEW OF CARDIOVASCULAR DISEASES

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ABSTRACT

Presently world is facing many severe health disorders, *Hridroga* is one of them. It can be correlated to cardiovascular disease which is now one of the most common causes of mortality. It accounts for approximately 30% of deaths worldwide. Cardio Vascular Disease comprises the most prevalent serious and a rapidly growing problem in developing nations like India. According to the World Health Organization, cardiovascular disease causes 12 million deaths in the world each year. It appears from this fact that there is still great scope to improve upon the concept as well as the practice of medicine in this area. *Ayurvedic* system of medicine can be of great help for controlling the heart disease, as the system is a votary of holistic approach. It is considered that many such diseases have multiple aetiology; hence a multipronged approach is more suitable for their management. A detailed description about *Hridroga* is present in ancient *Ayurvedic* texts with symptomatology, their curative and preventive measures. Symptoms of heart disease are also found in the disorders of other systems and due to which heart diseases have vast correlation with other systems of the body like digestive system, respiratory system etc. This article explains how *Ayurvedic* symptomatology resembles with symptoms of modern cardiovascular diseases and how the concepts of *Ayurveda* can help to prevent heart disease and how the care of heart should be taken through holistic way.

**Keywords:** *Hridroga*, Heart Disease, *udavarta*, cardiovascular diseases.

**INTRODUCTION:** *Hridroga* is one of the major problem of world health . It can be correlated to cardiovascular disorder which is now one of the most common causes of mortality. It accounts for approximately 30% of deaths worldwide. CVD comprises the most prevalent serious and a rapidly growing problem in developing countries like India. According to the World Health Organization, cardiovascular disease causes 12 million deaths in the world each year. *Ayurvedic* system of medicine can create great hope for controlling the heart disease. It is considered that many such diseases have multiple aetiology, hence a multipronged approach is more suitable for their management. A detailed description about *Hridroga* is present in ancient *Ayurvedic* texts with symptomatology, their curative and preventive measures.

Symptoms of heart disease are also found in the disorders of other systems and due to which heart diseases have vast correlation with other systems of the body like digestive system, respiratory system etc. This article explains how *Ayurvedic* symptomatology resembles with symptoms of modern cardiovascular diseases and how the concepts of *Ayurveda* can help to prevent heart disease and how the care of heart should be taken through holistic way.

**Aetiological Factors Of *Hridroga* :**As per modern science, etiological factors which are responsible for the origin of CVD are certain infections, genetic disorders, standard of living, dietetic irregularities, physical inactivity, obesity, addiction, alcohol intake, radiation and heat stroke, adverse physiological factors like stress and emotional upheavals and some diseases.

*Ayurveda* emphasizes on multiple causative factors for *Hridroga* as Over exertion, excessive exercise, excess administration of purgation, enema and emetic therapies, emaciation, certain psychological factors like excessive worry, fear and stress, trauma (physical and mental), Improper treatment of disease, emesis, *Ama*, Suppression of natural urges like thirst, tears, *Shrama Shwasa*(exertional dyspnoea), *AdhoVata* and cough.<sup>i</sup>

*Ayurveda* does not only considers physical inactivity as causative factor but also emphasizes on the factors which are responsible for wasting of *sharir dhatu* which aggravates *Vata dosha* and affects an important *marma* like heart. According to modern researches stress is considered a contributing risk factor for heart disease because little is known about its effects. Researchers have identified several reasons why stress may affect heart. Stressful situations raise heart rate and blood pressure, increasing the heart's need for oxygen. This need for oxygen can bring on angina pectoris, or chest pain, in people who already have heart disease. During times of stress, the nervous system releases extra hormones (most often adrenaline). These hormones raise blood pressure, which can injure the lining of the arteries.

When the arteries heal, the walls may harden or thicken, making it easier for plaque to build up. Stress may also contribute to other risk factors like people who are stressed may overeat for comfort, start smoking, or smoke more than they normally would.<sup>ii</sup> *Ama* which is defined as vitiated *rasa Dhatu*, incompletely metabolized product of digestion deserves

specific attention. The condition like hyperlipidemia can be correlated to *Rasadhatugata Ama. Snigdha, madhura ahara*, sedentary lifestyle causes *dhatugata Ama* due to *dhatwagnimandya*. This condition is clearly mentioned in pathogenesis of *Hridroga* as the vitiated *rasa (Amarasa)* takes opposite course and obstructs at heart resulting in *Hridroga*.<sup>iii</sup>

The suppression of natural urges cause *Udavarta* disease which itself is a causative factor for *Hridroga*. Concept of *udavarta* is a specific and unique concept where *Apana* when habitually disturbed, disturbs the function of *prana* in return, which ultimately affects the function of heart. Disturbance of the functions of heart is encountered in the *Rasakshaya, Pandu* and *Grahani. Madya* i.e. alcohol is the potent cause of disturbing the normal function of the heart. In excess, it disturbs all *doshas* and destroys the inherent *Ojas* and as heart is the seat of *Ojas*, it badly affects heart. According to *Ayurveda* the heart and GIT are interrelated and interdependent as '*tatra pranavahanam srotasam hriday mulam mahasrotasashcha*' means heart and GIT are the roots of *Pranavaha Srotas* and also heart is the root of *Rasavaha Srotas*. So they are interrelated and *rasavaha* and *pranavaha srotodushti* ultimately results in heart disease or may be responsible for heart attack.<sup>iv</sup> Thus the pathological condition of one system affects the other also, so for prevention of CVD, stability of digestive tract is important.

#### ***Udavarta as etiological factor for Hridroga***

According to *Ayurveda*, suppression of some natural urges is very important cause for *Hridroga* like suppression of

defecation, micturition, belching, thirst, cough, exertional breath, weeping and ejaculation of semen are said to be etiological factors of *Hridroga*. Suppression of natural urges cause aggravation of *Vata dosha*. Heart is amongst the *trimarmas* and all these *trimarmas* are under high risk of aggravated *Vata dosha*, because it can vitiate the other two *doshas* and can take them along, at the site of *srotovaigunya* i.e. *Hridaya* to cause *Hridroga*.

रोगा सर्वेपि जायन्ते वेगोदिरणधारणैः ।<sup>v</sup>

According to *Carakacharya*, *Udavarta vyadhi* is also an etiological factor for the *Hridroga*. In the context of *udavarta* disease, *Carakacharya* mentions that due to

excess intake of *Vata* aggravating factor, indulgence in sex without taking appropriate food and because of suppression of natural urges like urination and defecation, the *apana vayu* gets strongly aggravated obstructing the downward moving channels like anus and urinary passage, resulting in gradual obstruction in movement of stool, urine and flatus giving rise to *udavarta*.<sup>vi</sup> In symptoms of *Udavarta* some symptoms can be seen in one and another form of heart disease from which it can be said that *Udavarta* has some role in the manifestation of Heart disease.

### Comparison Between Symptoms Of *Udavarta* And Heart Disease:

Manifestations of <i>Udavarta</i>	Cardinal Manifestations of Heart Attack-
Frequent pain in heart, abdomen and pelvis.	Chest pain or pressure (heaviness) Chest discomfort.
Excruciating pain in backside of chest	Back pain or upper abdominal pain
Flatulence, nausea, pricking pain and indigestion	Heartburn or feeling of indigestion
Obstruction to voiding stool and appearance of boils in the abdomen.	Unexplained sweating
diseases can manifest like fever, dysentery, cardiac ailments,	Jaw pain, or extension of pain into the arms or shoulder
vomiting, burning sensation of head,	Nausea, vomiting
anorexia, cough, dyspnoea,	Shortness of breath
Facial paralysis, disease in the sides of chest etc <sup>vii</sup> .	General lethargy or listlessness (malaise) <sup>viii</sup>

**Pathogenesis of *Hridroga*:** According to *Sushrutacharya*, suppression of some natural urges, ingestion of food having hot potency and dry properties in excess quantities, use of incompatible foods, more quantity of food often, uncooked, unaccustomed food in more quantity causes aggravation of *Vata*, *pittadi dosas* which vitiate the *rasa dhatu* and go towards the heart and give rise to pain in the heart resulting in *Hridroga*<sup>ix</sup>

According to modern science, over the course of lifetime starting from early childhood to the adulthood, due to ones bad

food habits like eating fatty foods, junk foods, fried, spicy, fatty food items, arteries whose inner lining is normally smooth get slowly become clogged with clumps of fats, cholesterol and other material, called atherosclerotic plaques. This causes hardening or narrowing of the arteries. These plaques suddenly get ruptured and a blood clot forms around the ruptured plaque. As a result, the supply of blood with its oxygen and nutrients going to the heart muscle is choked off (myocardial ischemia). As there is reduced blood supply to the heart, it can't function normally, and one

experiences the physical symptoms like chest pain, dyspnoea etc. resulting in one and the other form of Heart disease<sup>x</sup>. Looking at the pathology of both streams, there is a fair similarity like hardening or narrowing of arteries supplying blood to the heart can be considered as *Sthanavaigunya* at *Hridaya Marma* and the rest of pathology can be explained with the following quotation of *Sushrutacharya*, which means that vitiated *doshas* in the body (which may be the blood clot around the plaque) get clogged at the site of *Srotovaigunya* and cause the disease at the same site-

कुपितानां हि दोषाणां शरीरे परिधावताम् ॥

यत्र सङ्गःखवैगुण्याद्व्याधिस्तत्रोपजायते ॥

सुश्रुत सूत्रस्थानम् – २४/१० ॥

It can be further explained by considering a pathological condition of Angina pectoris also called coronary heart disease which is characterized by paroxysmal pericardial pain. Decreased blood flow due to gradual narrowing of major coronary arteries; spasm of coronary vessel causes angina pain. The heart is the organ most affected by emotion. Hence continuous stress and suppressed emotions can be predisposing factors for angina pectoris. These predisposing factors of angina are mostly similar with the factors responsible for *srotodushti* of *Rasavaha srotas* like ingestion of *Guru*, *Snigdha*, *Atishita*, *Atimatra Ahara sevan*, *Samashana* and most importantly *Atichintana* i.e. continuous stressful condition of mind, these factors create dushti in aadya *rasa dhatu* and helps to create *Ama* which all together creates *sthana vaigunya* in *Hridaya* as it is the seat for *Rasa Dhatu*. As per *Sushrutacharya*, Vitiated *Kapha* and *pitta*

cause obstruction in coronary arteries, which are already narrowed. This causes vitiation of *Vata* and the obstruction to the blood flow of heart and difficulty in breathing causes immense pain in and around the heart region called as *Hritshula*<sup>xi</sup> i.e. painful condition of Angina.

**Myocardial infarction and Krimija Hridroga :** Myocardial infarction is a clinical condition resulting from sudden curtailment of myocardial blood supply. Severe and prolonged cardiac pain and other symptoms and signs of cardiac damage characterize it. As per *Ayurveda*, in *Krimija Hridroga* person suffering from *tridoshaja* type of *Hridroga* if starts consuming excessive food substances like dairy (cheese and butter), jaggery, sesame seeds and oil etc. his *rasa dhatu* gets affected more with excessive formation of *kleda*. *Rasa* becomes sticky in some parts of heart causing nodules in the heart. This all result in *krimija Hridroga* which is characterized by feeling as if heart is being pierced by needles or being cut in to pieces by weapons with itching and pain in the heart. Similar symptoms can be seen in patients with myocardial infarction and also in other cases of heart diseases.<sup>xii</sup>

**General symptoms of Hridroga :**

वैवर्ण्यमूर्छाज्वरकासहिकका

श्वासास्यवैरस्यतृषाप्राप्रमोहाः ।

छर्दिःकफोत्क्लेशरुजा अरुचिश्च

हृद्रोगजाःस्युर्विविधास्तथान्ये । च.सि.९/७८

These are the general symptoms of *Hridroga* as per *Charak Samhita*. These symptoms can also be seen in various forms of cardiac manifestations like pallor, cyanosis and malar flush (*kapolarunya*) can be included

under discoloration (*vaivarnya*), *Murchha*(stupor) is the cardinal feature of cardiac *asthma*, *jwara*(fever) is seen in septic endocarditis, *Kasa*(cough), *Hikka* and *Shwasa*(dyspnoea) are the pressure symptoms found in mitral regurgitation and

mitral stenosis, *Chhardi*(vomiting), *Aruchi*(anorexia) are found in coronary thrombosis.<sup>xiii</sup>

**Comparative table of symptomatology of *Hridroga* and Heart disease:**

Symptoms of Ayurvedic <i>Hridroga</i> <sup>xiv</sup>	Symptoms of Angina and other Heart Disease <sup>xv</sup>
<i>Vataja Hridroga</i> - Tremors, cardiac cramps, pauses in cardiac beats	Chest pain, pressure (occurs usually after exercise in cardiomyopathy) cramping
stupor,	heaviness, Palpitations (irregular heartbeats or a “flip-flop” feeling in chest)
sensation of voidance in cardiac region, dyspnoea	Fainting, Fullness, tightening,
Tachycardia	shortness of breath, squeezing, burning
exceedingly sever pricking, twisting, tearing, exploding and splitting pain on completion of digestion	Rapid heartbeats, aching across the chest, particularly behind the breastbone
<i>Pittaja Hridroga</i> - Thirst,	This pain often radiates to the neck, jaw, arms, back, or even the teeth,
fainting,	indigestion,
giddiness,	heartburn
perspiration,	weakness
dryness of mouth	Sweating
exhaustion,	nausea
<i>Kaphaja Hridroga</i> - numbness, stiffness, lassitude	Dizziness
Heart block, heaviness in cardiac region	malaise, fatigue and generalized weakness
heaviness and sensation of pressure on all sides of cardiac region as if pressed by stone,	Chest discomfort, Shoulder or back ache, feeling of weight in chest(in heart valve disease when going out in cold air)
anorexia, sweet taste in mouth	Pounding in chest, upper abdominal pain,
Fever, cough	Sharp pain in center of chest, Low grade fever (in pericarditis)
	Productive cough(in heart failure)

From the above similarities, it can be said that the description of *Hridroga* and its various forms largely coincides with today’s heart disease and that’s why the preventive and curative measures prescribed by

*Acharyas* of *Ayurveda* thousands of years ago will definitely be useful to reduce the death percentage from CVDs, if used in proper way and with thorough study of



*doshas* and *Avasthas* (state of *Dosha*) of disease as depicted by *Acharyas* in *Samhita*.

#### Importance of *Vata dosha* in *Hridroga* :

A 2004 study at Tokyo Women's Medical University showed that many workers have heart attacks in the early morning hours and especially on **Monday** morning.<sup>xvi</sup> This may probably happen due to the excessive consumption of fast foods and junk foods on weekends which results in *rasavaha srotodushti*, creating *Ama dosha* and repetition of the same at every weekend causes *sthana vaigunya* at *Hridaya*. The early morning time i.e. last phase of night is the time of predominance of *Vata dosha* naturally which is most harmful for *Hridaya marma* and any vitiation of *Vata dosha* along with *sthana vaigunya*, *Hridaya* becomes the strong cause for Heart Attacks. So these all factors might be responsible for the incidences of ischemic attacks on Monday morning.

**Preventive Cardiology according to Ayurveda and Curative measures.** In the context of prevention, an important view has been put forward by the learned *Susrutacharya*, that the '*nidan parivarjana*' (to control the causative factors) is the best method of prevention. For prevention of CVD, it is better to avoid all sorts of stress and trauma, rashness of behavior and to follow the principles of hygiene and health, periodic purification of body, mental tranquility and balanced thought. Judicious use of purgation and other purifications to eliminate the morbid matter through stool, urine and gases is necessary. To create calm peaceful and pleasant state of mind, excitement in any form should be avoided.

आबाधवर्जनं नित्यं स्वस्थवृत्तानुवर्तनम् ।

उत्पन्नार्तिविघातश्च मर्माणां परिपालनम् ॥

च.सि.१२

*Charakacharya* says *prana* of human beings is located in the heart therefore efforts should be made to protect these vital organ. The protection of the vital organs is possible by the avoidance of causes, constant adherence to the rules of the regimen of hygienic living and prompt treatment of the incidence of disease.<sup>xvii</sup> The drugs and diet to be used in prevention and cure of *Hridroga* should be of category of *hridya*, *balya* and *rasayana* i.e. aggregable and tonic to heart, stamina giving and having long lasting corrective and regenerative effect on damaged tissue. *Ayurveda* considers that ghee and milk are the best promoters of *ojas*, protectors from toxic effects and tonic for heart.

The vital center like heart is required to be protected particularly from the morbid effects of *Vata dosha*, because this aggravated *Vata* is responsible for the aggravation of *pitta* and *Kapha* and becomes responsible for pathogenesis of *Hridroga*. *Prana* of the body also depends upon this *vayu* therefore, there is none other than ***basti*** therapy can safeguard the vital organ like Heart.<sup>xviii</sup> ***Basti*** is known to be the best therapy for balancing *Vata dosha*. It should be administered with proper combination of *Vata Shamaka dravyas* in the high risk individuals after considering the state of *doshas* and disease in their body.

**Principles of Treatment:** For the cure of heart disease, the treatment should be done after considering the causative factors like *Ama* formation, *Rasavaha Srotodushti*, *Ojas kshaya*, *Udavarta* and most important consideration should be the proper treatment

of *Vata*, which is aggravated due to varied reasons because *Vata* is the most hazardous factor in the treatment of heart disease as heart is amongst the *trimarmas* and all three *marmas* are always under the threat from *Vata dosha*.

*Vatanulomana* is very essential in *Hridroga* and should be done as mentioned in *Udavarta Chikitsa*. The direction of *prana* and *apana vayu* i.e. *urdhwa*(upward) and *Adho*(downward) direction gets disturbed in heart disease due to *udavarta* and it should be rectified. The curative measures of *udavarta* should be followed by massage with *Agurvadi taila* and fomentation therapy for the detachment of adherent *doshas*. Further administration of *vartti* of *syama*, *trivritta*, *sauvarchal*, *hingū*, *shunthi*, *pippali*, *maricha* etc in to the oiled anus for the downward movement of *Vata* and cure of retention of stool, flatus and urine is indicated.

**Role Of Panchkarma:** Panchkarma therapy plays important role for *vatanulomana*. If the above said procedures fail to produce desired result, then patient should be given oleation and fomentation therapies followed by *niruha* type of medicated enema to relieve the retention of urine, stool and flatus and promote the normal functioning of GIT.<sup>xix</sup> Habitual suppression of natural urges of urination, flatus and defecation leads to vitiation of *vayu* and *udavarta* disease. This vitiated *Vata* is harmful for vital marma like heart and *Vata* at times may provoke the aggravation of *pitta* and *Kapha dosha* as stated earlier. Therefore to control over *Vata dosha*, *niruha basti* followed by *anuvāsana basti* is to prevent excess of dryness in intestines (*koshtha*).

**Ojakshaya(Decrease Of Ojas):** Heart is the seat of *Ashtabindwatmaka Ojas* and any decrease or vitiation of this *Ojas* produces deleterious effects on heart and even death also. Some factors like drinking alcohol in excess is very harmful for heart as alcohol has exactly opposite qualities to *Ojas* due to which alcohol makes significant decrease in *Ojas* and may become responsible factor for *Hridroga*. *Ojas* also get decreased by anger, hunger, too much worry, grief, exertion and others. Due to this decrease, the person affected becomes frightened, weakened, worries very much without reason, his sensory organs become uncomfortable and distressed, complexion becomes affected badly, mind acts badly and body becomes dry, and also lean<sup>xx</sup>. Ultimately the decrease of *Ojas* from the body causes decreased immunity and body get prone for diseases.

तन्महत्ता महामुलास्तच्चोजः परिरक्षता ।

परिहार्या विशेषेण मनसो दुख हेतवः ॥

हृदयं यत् स्याद् यदौजस्यं स्रोतसां यत् प्रसादनम्

। च.सु.३०

*Charakacharya* says, to prevent *Ojas* and to keep heart and the vessels attached to it, in good condition, the factors that may lead to unhappiness, mental worries should be avoided. Diets and drugs which are conducive to heart, *ojas* and channels of circulation should be taken.<sup>xxi</sup> *Ayurveda* describes a very large number of *Rasayanas* and *Ojovardhaka* remedies like *Ashvagandha*, *Shilajatu*, *Tulsi*, *Amalaki*, *Punarnava* and medicines from *jivaniya* group like *Kakoli*, *Kshirkakoli*, *Jivanti*, *Yashtimadhu* etc which will be helpful in preventing *Hridroga* by increasing *Ojas*.

**Hridroga Chikitsa according to Susruta:**

According to *Susruta*, *Hridaya* is the seat of *Kapha dosha* and in treatment of any disease, the treatment of the *sthanic*(local) *dosha* of that site should be treated first followed by the treatment of respective aggravated *dosha*. The best treatment for the aggravated *Kapha dosha* is *vamana*, that's why *Susruta* has prescribed *vamana* therapy following oleation by drinking decoction of drugs of *dashamula* added with fats and salts, in the treatment of *Vataja Hridroga* . Similarly with other forms of drugs, he has prescribed *vamana* therapy in *Pittaja* and *Kaphaja Hridroga* . But in case of *krimiya Hridroga*, he has prescribed *virechana* therapy after consuming *utkleshakar ahara*.<sup>xxii</sup> One should examine the disease thoroughly considering the factors like *dosha, desha, kala, vaya, bala* of both patient and *vyadhi* and *avastha* of the disease before applying the above purificatory measures. Based on *susruta's* point of view, it can be concluded that accumulation of *doshas* and *Ama* at the site of *sthanavaigunya* and the process of *srotodushti* of *Rasavaha* and *Pranavaha srotas* can be definitely avoided through the periodic purification of body. Purification of body through *vamana, virechana* and *basti* therapies as described in *ritucharya* should be done to protect this vital organ particularly in the patients which are at high risk.

**Vatopahata Marma chikitsa:**Heart when affected by *Vata dosha* which is mainly responsible for heart disease, the patient should be given a potion consisting of powered *Asafoetida* mixed with powder of any salt in the juice of any acid or cordial liquid(*Hridya Peya*) and the decoction of

*penta radices* of the tick-trefoil (*laghu panchamula*) group as beverage mixed with sugar<sup>xxiii</sup>. In this way, such prescription told by our ancient *acharyas* after examining and experiencing them on number of patients, should be used by *Ayurvedic* physicians of today and should experience their result to boost up the confidence on our ancient Indian medicine.

#### Ayurvedic medications for Hridroga :

Physical and mental rest is essential for the heart patients. The patient must eliminate all strain and worry otherwise treatment will be less effective. Following are the drugs to be used in heart disease according to state of *dosha* and disease.

- In Ischaemic attack *Mrigashringa bhasma* 2-4 ratti with *ghrita/* honey and ginger every ten minutes till the pain is relieved.

- *Jatamansi* and *bramhi* powder 500 mg at night for their demolescent and soothing action that calms the nerves and heart muscles.

- *Vataja Hridroga-Brihata Vata Chintamani Rasa* 50 mg per day

*Pushkarmula* Powder 2 to 3 gms per day

*Pittaja Hridroga-Suvarna Sutashekhar Rasa* 20mg per day-*Suvarna Makshika Bhasma* 20 mg BD

*Kaphaja Hridroga-Hemagarbha Rasa* 10 mg BD with *Arjunarishta - Arogyavardhini +Prabhakar vati*.The effect of *Arogyavardhini + Prabhakar vati* has shown highly significant reduction in lipid levels. It reduces harmful lipids in the body and cause significant increase in HDL with significant relief in chest pain.<sup>xxiv</sup> Along with these measures, local application of *Hridbasti* with *Sahachara- Bala* taila makes



significant relief in patients with heart disease by strengthening heart muscles directly through *Balya* property of the above *taila*.<sup>xxv</sup>

### Some research works on Ayurvedic medicines useful in CVD:

**Pushkar guggulu:** Pushkar guggulu has some significant results in cases of heart disease. Researchers have shown that after six months treatment with *pushkar guggulu*, there is significant reduction in serum lipid levels and pericardial pain and dyspnoea on effort.<sup>xxvi</sup>

**Inula racemosa:** Studies have been conducted to find the efficacy of Inula compared to nitroglycerin for the prevention of angina symptoms in patients with chest pain and ECG ST-segment depression (indicative of myocardial ischemia) on exertion. Pre-treatment with Inula (3 grams root powder 90 minutes prior to testing) or nitroglycerin showed improvement in ST-segment depression on ECG, with greater improvements seen after Inula treatment.<sup>xxvii</sup>

In another study Inula was studied in combination with *Commiphora mukul* (a 1:1 mixture) in patients with ischemic heart disease showing the symptoms like dyspnoea and chest pain, with ST-segment and T-wave changes on electrocardiogram (ECG), suggestive of myocardial ischemia. *Commiphora* is known for its lipid lowering qualities, hence decrease in total cholesterol, triglycerides, and total blood lipids were observed. In addition, at the end of the six-month study period there is a complete restoration of normal ECG in some cases. Significant improvement in subjects having chest pain and dyspnoea was also observed.<sup>xxviii</sup>

**Arjuna:** *Arjuna* improves function of cardiac muscle and subsequently improves pumping activity of the heart. It is thought that the saponin glycosides might be responsible for the inotropic effects of *Terminalia*, while the flavonoids provide free radical antioxidant activity and vascular strengthening.<sup>xxix</sup>

**Clinical Studies on Terminalia:** An open study on effects of *Terminalia* on stable and unstable angina revealed a 50 percent reduction of anginal episodes in patients with stable angina after three months treatment and significant reduction was also noted in systolic blood pressure in these patients and an improvement in exercise tolerance. The unstable angina patients in this study did not experience significant reductions in angina or systolic blood pressure. Evaluating the overall clinical condition, treadmill testing, and ejection fraction, 66 percent of the stable angina patients and 20 percent of the unstable angina patients improved during three months of therapy.<sup>xxx</sup> Animal studies suggest that *Terminalia* can reduce blood lipids. The animals given *Terminalia* had a significant, dose related decrease in total and LDL cholesterol, compared to placebo<sup>xxxi</sup>. In a similar study, rats fed with cholesterol alone or with *Terminalia* bark powder for 30 days. *Terminalia* feeding caused a smaller increase in blood lipids and an increase in HDL cholesterol compared to the cholesterol-only group. The study's authors hypothesized that *Terminalia*'s lipid-lowering effects were caused by inhibition of hepatic cholesterol biosynthesis, increased faecal bile acid excretion, and stimulation of receptor-mediated catabolism of LDL cholesterol.<sup>xxxii</sup>

It suggests that these drugs can be safely used for preventive purpose in high risk group of individuals, but along with these researched drugs, other drugs and therapies like *Hridbasti*, *Niruha Basti* etc. mentioned earlier should also be used and their effect should be studied on scientific level.

**CONCLUSION:** The researches and the concepts of *Ayurveda* mentioned for prevention and cure of Heart disease show that Ayurvedic medications have definitely a significant role in controlling the heart conditions. Panchkarma therapy plays very important role in prevention and management of CVD. The periodic purification of body through *vaman*, *virechan* and most essentially through *Basti Chikitsa* is the need of time for prevention of such wide spreading disease. Further researches should be conducted on other various measures depicted in *Brihatrayi's* of *Ayurveda* to gain confidence over the treatment of heart disease. In all over India, various *vaidyas* treat and gain drastic results in diseases like heart and other more difficult entities, but their work remains unnoticed. The problem behind that might be the way of treatment through *Ayurveda* is not similar in all patients having same disease as *Ayurveda* considers individual parameters like *prakriti*, *sara* etc. Thus the treatment of Heart disease can be done successfully through holistic principles of *Ayurveda*.

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