



## Conceptual review on Prevention of Cardiovascular diseases in *Ayurveda* w.s.r to *Hridaya*

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### Abstract

*Ayurveda*, the science of life describes *hridaya* (heart) is indispensable for all the normal mental and physical activities because entire sense of perception representing animation depends on the heart. Heart is the substratum of the ojas par-excellance and it is also control of the mind. A small injury or variation in *ahara* and *vihara* produce syncope or unconsciousness, while any serious injury to it results to death. So *hridaya* should be protected from factors which cause unhappiness of the mind especially. Foods and activities which are good to heart should be used with all effort. In this article an honest review has been made regarding preventive measures as well as cardioprotectives (*hridaya*).

**Key words :** *hridaya, hridaya, pathya, apathya, CHD*

### Introduction

William Harvey [1578-1657] is credited with the discovery of circulation which he reported in 1628 in his monograph "*De Motu Cordis et Sanguine in a Mimalibus*". However we find in *Ayurveda* especially in *Charaka Samhita* a detailed description of heart, its branches, importance of heart for the whole body and various therapeutic and preventive approaches for heart care. Heart in *Ayurveda* texts has been compared to the central girdles of a building which supports the entire structure<sup>1</sup>.

According to WHO, an estimated 17.3 million people died from cardiovascular diseases in 2008. Over 80% of cardiovascular deaths take place in low and middle-income countries. By 2030, almost 23.6 million people will die from cardiovascular diseases<sup>2</sup>. Cardiovascular disease is now a days the leading cause of death for men and women both in the developed and developing countries and is caused by disorders of the heart and blood vessels, and includes coronary heart disease(CHD) (heart attacks), cerebrovascular disease (stroke), raised blood pressure (hypertension), peripheral artery disease, rheumatic heart disease, congenital heart disease and heart failure. The major causes of cardiovascular disease are tobacco use, physical inactivity, an unhealthy diet and harmful use of alcohol. The prevalence of coronary heart disease is known to be high in people of south Asian descent (subjects originally from Indian subcontinent). Some metabolic abnormalities are more prevalent among them, including high triglyceride concentration, increased total cholesterol and high-density lipoprotein ratio, type 2 diabetes mellitus, and central or visceral obesity. For men and women, cardiovascular risk is known to increase with age, smoking, hypertension, blood lipids and glucose levels, and central obesity<sup>3</sup>.

**Objective of the study :** To review the literature of prevention of CHD and *Hridaya*

**Materials and Methods:** Systematic review has been made from possible texts of *Ayurveda* and other authenticated texts to gather information regarding prevention of CHD and *Hridaya*

## Review of literature

Aetiology of many cardiovascular diseases is still not clear to us and we often take of risk factors, it is noteworthy to read to following description from Ayurveda. The body fat and flesh increases by avoiding physical exercise, worrying, not undergoing seasonal purification, excessive indulgence in sleep, sedentary habits, laziness and also by intake of flesh eatables, liquors, salty and acidic articles<sup>4</sup>. Ayurveda is not yet another system of medicine but is the knowledge of total health care based on the strong pillars of positive and promotive health, the mistaken often made is equate Ayurveda with Ayurveda medicines, although, Ayurveda lays emphasis on both preventive and curative aspects but its strength has been the former i.e. the preventive and promotive aspects.

Coronary heart disease is the major cause of death and disability in adults and elderly not only in developed countries but also in the developing countries including India. CHD may manifest itself in many manifestations like a) Angina pectoris b) Myocardial infarction c) Irregularities of heart d) Cardiac failure e) Sudden death.<sup>5</sup> Risk factors for CHD are two types – 1.non- modifiable 2.modifiable Non- modifiable factors include: Age, sex, family history and genetics. Modifiable factors are cigarette smoking, hypertension, elevated serum cholesterol, diabetes, obesity, sedentary habits and stress<sup>6</sup> Curative treatment which in fact is the palliative treatment such as the balloon angioplasty, atherotomy, stents and bypass surgery, is very costly affair which neither most of the families nor the state in developing countries can afford. The answer to this epidemic of CHD thus lies in its prevention. Modern medicine has been stressing the role of lifestyle including diet, physical exercise and mental relaxation in the prevention of CHD through reversal, regression and retardation of atherosclerosis.

*Satvika hara* ( vegetarian diet ) *Vyayama* (regular exercise ) and *manasika visranthi* ( mental relaxation ) through *dhyana* ( meditation), these pillars are the legs of tripod on which philosophy and science of preventive cardiology for the control and prevention of CHD stands. Role of *ahara*, *vyayama*, *manasika visranthi*, *pathya*, *apathy* and avoiding of mental afflictions has been extensively quoted in Ayurveda classics as the modes for prevention of heart diseases.

## Prevention of CHD

In the prevention of heart attacks and the role of mind in this aspect, Ayurveda has the following message for us. Those desire to protect from the adverse effects on their heart, coronary blood vessels and the contents there in, must particularly avoid all that causes afflictions of their mind<sup>7</sup>

The approach to preventive cardiology can be categorized under following headings.

Population strategy, Primordial/Primary Prevention & Secondary prevention<sup>8</sup>

Population strategy: CHD is primarily a mass disease; the strategy should therefore be based on mass approach focusing mainly on the control of underlying causes (risk factors) in whole population not merely in individuals. Ayurveda principles like daily routines which includes regular physical exercise, regular Luke warm water bath, proper evacuation of natural urges and *sadvritta* ( the right conducts of life) and dietary rules etc.. Can be propagated through mass media. .

### Specific interventions:

**Dietary changes** : dietary modification is the principal preventive strategy in prevention of CHD.Avoidance of excessive intake of fat substances (*taila varga*)

Increased complex of carbohydrate consumption like vegetables (*harita varga*), fruits (*phala varga*), pulses and cereals (*dhanya varga*).Avoidance of alcohol (*madya pana*).Reduction in intake of *lavana varga dravyas* especially salt intake.

**Smoking** : by taking *pragnaparadha* as a tool for both causative and preventive method, should explain bad effects of smoking in comprehensive health programmes through mass media

**Blood pressure** : effective control of blood pressure should include multi factorial approach based on *ahara* (food) salt intake and avoidance of alcohol intake, *vyayama* ( regular physical exercise ) and weight control

by consuming more leafy vegetables ,carrot, lemon-honey juice , curry leaves decoction etc.. . The potential benefits and safety and low cost of this advice would justify its implementation.

**Physical activity:** Chankramana (brisk walk) and regular moderate *vyayama* (physical exercise) should be part of normal daily life. It is particularly important to encourage children to take up physical activities that can continue throughout their lives.

**Primordial prevention/Primary Prevention:** A novel approach to prevention of CHD is primordial prevention. It involves preventing the emergence and spread of CHD risk factors and life styles that have not yet appeared. The Ayurveda principles of health care like *dinacharya*, which includes regular exercise, bathing, praying, meditation and wholesome diet, *ritu charya*, the seasonal purification and *sadvritta* which includes personality development and mental health care help in this primordial prevention level for

### prevention of CHD.

**Secondary Prevention:** The aim of secondary prevention is to prevent the recurrence and progression of CHD. Secondary prevention in modern practice is aiming at drug trials, coronary surgery, use of pacemakers etc.. But Ayurveda have the cardiac protective's, cardiac tonics which increases the heart strength to function up to the optimum level. In classical texts we find explanation of Hrudya Dashemaani by Acharya Charaka, Parushakadi gana by Acharya Sushruta and Vidaryadi gana by Acharya Vagbhata respectively which are proof to the fact of prevalence and treatment of Hrudroga (cardiac disorders) even in that period. These can be helpful in supporting to modern treatment to prevent recurrence and progression of cardiac disorders. Ayurveda suggests *ahara*, *pathya-pathya* and *oushadha sevana* .

### Pathya(conducive ) for heart disease:<sup>9</sup>

*Puran ashali*,(old rice) *mudga*(green gram), *yava*(barley), *kulatha*(horse gram), *patola*(snake guard), *karavellaka*(bitter guard), *abhaya*(chebulic myrobalan), *purana kushmanda*(old ash gaurd), *dadima*(pomogranate), *eranda taila*(castor oil) , *draksha*(grapes), *thakram*(butter milk) , *shunti*(ginger) , *lashuna*(garlic) , *chandana*(santalum) and *kushta* (coccus).

*Amla ras hridayanama*(sour taste )<sup>10</sup>

**Apathya for heart diseases:**<sup>11</sup> *Thailam*(saturated fats) , *guru ahara*(heavy to digest), *kashaya rasa dravya*(astringent foods) , *atapa sevana*(more exposing body to sun light) , *parisrama*(exertion), *krodha*(anger) , *adhika maithunam*(excessive sexual intercourse) , *chinta*(excessive thinking) and *adhika sambhashanama*(excessive talking) etc.. Should not suppress *sukra vega*, *udgara vega*, *pipsa vega*, *baspa vega*, *sramasvasa rodha*<sup>12</sup>, *avika sarpi*(sheep ghee) –*Ahridya*<sup>13</sup>

### Hridya (cardiac tonics/cardio-protectives in Ayurveda)

#### Ahara(food articles) :

*Mamsa varga*(Meat): *Jangala mamsa*(meat of animals of desert),*Ena mamsa*(back deer),*Krakara mamsa*(flesh of snipe)<sup>14</sup>, *shulya mamsa* (meat pierced with an iron rod and roasted on burning coal/flame)prepared with ghee<sup>14</sup>, *mamsa rasa*(meat soup)<sup>15</sup>

*Gorasavarga* (Milk and Milk products) : *navanetam* (butter)<sup>16</sup>, *ksheeram*(milk)<sup>17</sup>, *takram*(butter milk)<sup>18</sup>

*Madhu varga* (honey): *Madhu*(honey)<sup>19</sup>

*Phala Varga* (fruits): *Lavali phala*(*Cicca acida Merrill*)<sup>20</sup>,*Dadima*(pomogranate)<sup>21</sup>,*Nagaranga phala*(citrus *reticulata*)<sup>22</sup>,*Kharjura*(*phoenix sylvestris/dates*)<sup>23</sup>,*karchura*(*hedychium spicatum*)<sup>24</sup> *amra*(ripen fruit of mango)<sup>25</sup>

*Harita varga* (leafy vegetables): *yavani*(*trachyspermum ammi*) , *arjaka*(*ocimum gratissimum*), *sigru*(*moringa oleifera*) , *saleya*(*trigonella foenum-graccum*),*mrishataka*(*brassica nigra*)<sup>26</sup>, *Tikta saka*(vegetables of bitter taste)<sup>27</sup>

*Ahara yogi varga*(spices and condiments): *eranda taila*(castor oil)<sup>28</sup> *viswabheshajam*(dry ginger)<sup>29</sup>*sourchalam*(sonchal salt)<sup>30</sup>, *bida lavanam*(type of lavan), *yavakshara*(an alkali prepared from plant *Hordium valgarae*)<sup>31</sup>

*Kritanna kalpana*(prepared foods )<sup>32</sup>: *Odana*(porridge), *mudga supa*(green gram soup),*laja manda*(scum of gruel prepared with fried paddy) ,*yusha*(soup) prepared with *patola* and *nimba*, *dadimaamalaki yusha*(soup)

of pomogranate and indian goosberry), *khad* and *kambalika*(prepared from cooked pulses or vegetables , added with butter milk and processed with spices and salt,*raga* and *shadava*( thick sauce-as mixture of sugar, *bida lavana*,*saindhava lavana*,*vrikshamla*, juice of *parushaka*, *jambuphala* and *rajika* used as a syrup , *guda samyukta dadhi*(curds added with jaggery), *panaka*(syrup) prepared from *parushaka* or *kola*, *bhakshya*(eatables) prepared with milk, *ghrita purita bhakshya* ,*vishyanda* (raw flour of wheat added with milk and jaggery –all stirred well to form a liquid neither too thin nor too solid, *phenaka* ( flour of wheat which is very white , is added with little quantity of sugar, made into slender thin sticks and dried them in a shade , then it is deep fried in ghee till it becomes hard cooked , put these into boiled milk and then consumed along with milk), eatables cooked in ghee, *vimardaka* ( crushed or pounded meat prepared by adding many substances and fried till the moisture gets evaporated <sup>33</sup>, *rasala* and *saguda dadhi*<sup>34</sup>, *raga* , *shadava* ( ketchup, sauces and pickles)<sup>35</sup> *Vilepi*(thick gruel)<sup>36</sup>, *odana* prepared by addition of vegetables, meat, fat, oil,ghee, bone marrow and fruits<sup>37</sup> *bhakshya*(out of wheat) prepared with fat <sup>38</sup>

*Madya varga* (Fermented preparations): *Draksha kharjura panaka*(beverage prepared from grapes and dates)<sup>39</sup>, *Kharjura madyam*(wine prepared from dates)<sup>40</sup>,*Sarkaraseedhu*(fermented liquor from sugar),*Surasava*(wine prepared by fermenting beer) *Purana madya*(old wine),*Tushambu*(fermented liquid prepared by using husk of barley), *dhataki sura* ( beer prepared from flowers of dhataki)<sup>41</sup>, *madhvika* (beer prepared from honey), *mridvika*, *ikshurasava* <sup>42</sup>,*suaviraka* and *tushodaka* ( wine prepared barley grain and barley husk)<sup>43</sup> *sarkara*<sup>44</sup> ,*pakvarasa*(wine prepared by boiling sugar cane juice)<sup>45</sup>  
*Jala* (Water): *Toya*(Potable water) <sup>46</sup>, *Narikelodakam*(tender coconut water)<sup>47</sup> ,*Prasravanam*(streams)<sup>48</sup>

### ***Oushadha varga* (Medicines):**

Single drugs :*Arjuna* ( terminalia arjuna ),*Hritpatri* (digitalis purpura),*Vana palandu* (urgenia indica )*Tambula* (betel leaf),*Putikaraveer*(theveshia nurifolia ),*Tharuni* (rosa centifolia ),*Rudraksha* ( elaeocarpus gantricus ),*patala* ( stereospermum sauveolence ),*Vasa* (adathoda vasica ),*Twak* ( cinnamomum zylanicum ), *Brihati* (solanum indicum),*Karchura* (curcuma zedoria),*Pushkara mula* ( nula rasemosa ),*Soma* (ephedrine garandiana),*Malaya vacha* ( alpinia galangal ) ,*kustumbari*(green coriander leaves),*rasona* (garlic) ,*ardraka*(ginger)

### **Compound drugs <sup>49</sup>**

*Pippalyadi churnam*, *haritakyadi churnam*, *pushkaramuladi kalka*, *shunti kwatha*, *pushkaradikwatha*,*arjunaksheeras siddha ksheeram*, *arjunatwak churnam*, *sukshmeladi churnam*, *trivritadi churnam*, *godhumarjuna churnam*, *nagabalarjuna churnam*,*hingvadi churnam*, *kakubhadi churnam*, *pathadya churnam*, *dasamula kwatham*,*trinetra rasam*, *nagarjunabhra rasam*, *hridayarnava rasam*, *panchanana rasam*, *prabhakaravati*, *chintamani rasam*, *visweswara rasm*, *shankara vati*, *kalyana sundara rasa*, *ratnakara rasa*, *vallabhaka ghritam*,*swadamshtradya gritam*, *baladya gritam*, *arjina gritam*, *parthadyarishta*

*Hridya dasemani*(ten dugs good for the heart/cordial)<sup>50</sup>: *Amra*(*mangifera indica*), *Amrataka*(*spondias pinnata*), *likucha*(*artocarpus lakucha*), *karamarda*(*carissa carandes*), *vrikshamla*(*tamarindus indica*), *amlavetasa*(*rheum emodi*), *kuvala*(*zizyphus sativa*),*badara*(*zizyphus jujuba*),*dadima*(*punica granatum*) and *matulunga*(*citrus decumana*)

*Dinacharya* (Daily regimen): *Tambula sevana*<sup>51</sup>*Snana* (bath)<sup>52</sup>

### **Discussion:**

Cardiovascular diseases are discussed under *Hridroga* in Ayurveda. *Hridaya* has been referred to be the site of psyche. Any kind of psychological disturbance will lead to a disturbed patho-physiology of the heart. *Prana*(life) of the human beings is located in the heart therefore efforts should be made to protect the vital organs like *hridaya* (heart), *basti*(bladder related structures) and *siras*(head). The protection of vital organs is possible by the avoidance of causes, constant adherence to the rules of the regimen of hygienic living (*swasthavritta*) and prompt treatment of the incidence of diseases. The drugs and diet which are used in prevention and cure of *hridroga* can be grouped under *hridya*, *balya*,and *rasayana*.these interventions are having long lasting corrective and regenerative effect on damaged tissue.

In the prevention of CHDs the diet and drugs should have properties to act on the heart like *hridaya*(cardio tonics), *deepana*(carminative),*pachana*(metabolic regulator), *anulomana*(mild purgative),*virechana*(laxative) *balya* (tonifying) and *rasayana*(immune modulators).

The *pathya ahara* and the *hridaya ahara* and *oushadhas* which are mentioned in the context of prevention chronic heart diseases are having above properties.

Ayurveda considers ghee and milk are the best promoters of ojas ,protectors from toxic effects and tonics to heart.

Amla fruit as an excellent anti-oxidant that help to prevent arterial damage from free radicals as well as nourishing the heart tissue. Amla can help to prevent boost the immune system and nourish the heart.

Arjuna like single drugs and compound drugs will strengthens cardiac muscle, reduces arterial congestion and lowering the blood pressure thus helps in prevention and control of cardiocascular diseases.

### Conclusion:

*Hridaya* is the seat of *chetana*( the conscious principle ) based on its uninterrupted work through out the entire life period of life and stop working at the end of life leading to death , which then makes the body *achetana*. It is a vital organ which derived from maternal source and developed from blood and kapha during embrionic period. To protect from any type of vitiation or injury a wise person should take much vigilance by observing proper *pathya* and *apathya* and by Judicial use of *Hridya* (cardiotonics or cardio – protectives ) as a prevention of cardiovascular diseases . These Ayurvedic cardiotonics or cardio-protectives can be used at primordial, primary and secondary prevention level.

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