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ROLE AND IMPORTANCE OF HRIDYA MAHAKASHAYA MEDICINAL HERBS IN MANAGEMENT OF CARDIOVASCULAR DISEASES

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ABSTRACT

Cardiovascular diseases pose an alarming threat to global health. Cardiovascular diseases (CVDs) have now become the leading cause of mortality in India. A quarter of all mortality is attributable to CVD. Cardiovascular disease is a major cause of disability and premature death throughout the world. The heart is the vital organ as any type of damage to this organ leads to loss of life. Several forms of therapies can prevent Coronary, Cerebral and peripheral Vascular events. Recommendations are made for the management of major Cardiovascular risk factors through a change in lifestyle and Prophylactic drug therapies. Hridya Mahakashaya as said by Charaka is a group of ten drugs that comprise mostly citrus fruits with Ascorbic acid in it. These drugs are useful in maintaining cardiac health. The Critical analysis of these drugs in the treatment of Hridroga indicates they have a crucial role in the management of cardiac as well as cerebrovascular diseases. In the present article we are discussing regarding the Hridya Mahakashaya Medicinal Herbs In Management Of Cardiovascular Diseases

INTRODUCTION

Cardiovascular diseases pose an alarming threat to global health. Cardiovascular diseases (CVDs) have now become the leading cause of mortality in India. A quarter of all mortality is attributable to CVD. Ischemic heart disease and stroke are the predominant causes and are responsible for >80% of CVD deaths. The Global Burden of Disease study estimate of age-standardized CVD death rate of 272 per 100 000 population in India is higher than the global average of 235 per 100 000 population (Prabhakaran et al., 2016). Ayurvedic aspect of Hridaya (Heart) The word Hriday is composed of three syllables, i.e. hri+da+ya=hriday. The first syllable denotes the suction activity of Hriday (Hridayam i.e. venous return), second points out the pumping activity of Hriday (Samvardhanam i.e. supply of oxygenated blood) and lastly the third syllable means control of these above two functions (Yama). According to Ayurveda, Hriday is the best place of chetnayata (consciousness) and oja. Charak has stated that heart is the seat of consciousness which is primarily a function of the brain (Charak Su. 30/7). Hriday is the place of origin of two equally important Srotasas i.e. Pranavaha srotas and Rasavaha srotas . Rasavaha srotas is responsible for converting the Aahar Rasa to Rasa Dhatu and providing nourishment to all other body constituents and Pranvaha srotas is responsible for uninterrupted supply of the Ambarapeeyush (oxygen) through breathing. Rasa Dhatu is the first tissue

emerging out of the nutritive fluid Aahar Rasa. Rakta circulates with Rasa all over the body and is responsible for Jeevan Karma, sustaining the life processes by supplying Pran to all body constituents. Rasarakta complex is essential for the continuation of life. The human body is nourished by Shuddha rakta circulated by Hriday with the help of Vyanavayu (Arif et al., 2018)

Principles of management of Hridroga Prevention starts with correction of basic lifestyle. Ayurveda has enough lifestyle choices like Dinacharya (which includes regular exercise, prayer, meditation, wholesome diet) and Ritucharya (seasonal purification) incorporating dietary changes like reduced intake of salt, increased consumption of vegetables, fruits, cereals and Sadvritta (personality development and mental health care aids.) (5) Ayurveda suggests ahara, vihara including psychological factors and continuous use of appropriate medicines in the management of hridroga .In classical texts, several Ganas such as Hridaya Dasaimani by Charaka, Parushakadi Gana by Susruta and Vidaryadi Gana by Vagbhata are aimed at better management of the conditions of Hridroga. Guna, Karma of Amla rasa Amla rasa is the one among Shadrasas which consists of Agni and Prithvi Mahabhutas (according to Charaka) in it. Amla rasa is having Gunas like Laghu, Usna, Snigdha and Karmas like Agni dipana (Appetizer), Mano bodhana (Sharpens mind), Indriyadhikaraka (Energise sense organs), Rochana (improves taste), Brumhana

(produces stoutness), Tarpana (satisfaction), preenana (nourishment), Kledana (moistness), Balavardhaka (Gives strength), Hridaya tarpaka (Gives strength to heart), Jarayati (Digests the food), Urjakara (Gives energy), Anulomana (brings vata to its normal direction) etc (10) Specific actions on doshas like Vatahara (pacifies vata), Pitta Slesmakara (increases pitta and slesma) and Raktakrut (increases Rakta) Pharmacological review of Hridya Mahakashaya: As said earlier Ama dosha, rasa dusti, obstruction of vata is a causative factor for Hridroga. Amla rasa is composed of Agni and prithvi, due to this agneya guna and deepana karma of amla rasa digests ama and by means of Ushna, Snigdha gunas and vatanuloma property, amla rasa brings vata in normal state and breakdowns the pathophysiology of Hridroga. Hridaya is also one of the sight of Mana(mind). Amla rasa does Hridaya tarpana so it satisfies the mind and improves mental strength. As all of these are Amlarasa Pradhana drugs the Guna karma of amla rasa could be expected in all these drugs. The properties like Agni deepiti (Stimulates Digestion), Hrudya, Pachana, Rochana, Prenana, Bhedana, laghu, Vatanulomana are applicable to these drugs exception being Amra(ripe) which is bruhmana type of Hrudya drug, which is predominantly Madhura rasa. Most of the Dravyas used here are of Ushna veerya, Madhura vipaka and kapha - vata samaka properties, which help in alleviating vitiated doshas and in maintaining equilibrium.(12, 13) Apart from cardio protective activity, they were also reported for their antioxidant,

anti-stress, diuretic, anti-hyperlipidemic and antimicrobial activities which are the key factors in treating cardiac diseases. Vitamin C for heart disease prevention: Vitamin C not only protects your heart it also increase your immune system and it builds collagen. Elevated cholesterol is not the cause of heart diseases. Coronary artery disease is caused by inflammation in the coronary arteries and that inflammation is due to some underlying causes like toxins in the environment, things that we eat, breath and drink. These contain Petrochemical products and those chemicals due to their toxic effect they cause inflammation in the coronary arteries. When the arteries become inflamed and begin to deteriorate. The primary mechanism for healing the arteries is collagen. It is the protein made by the body to glue the inflamed skin layers. When arteries are inflamed the body produces collagen to heal the arteries. Vitamin C has that ability to make a collage but if your body does not have Vitamin C body cannot produce collagen. At this point, the body has a natural backup mechanism to heal the arteries by producing a lipoprotein called cholesterol. This cholesterol acts as a bandage on the inflamed arteries and starts building plaque. This plaque absorbs calcium from the body and gives rigidity to the arteries to protect from breakdown. This arterial calcification is called atherosclerosis. So you need high levels of Vitamin C to make collagen to prevent from atherosclerosis and thus preventing heart attack. Vitamin C cuts down inflammation helps to heal inflammation in the arteries, helps to make

collagen, lower your blood pressure, lowers cholesterol, built-up immune system and helps with adrenal function. Vitamin C also plays an important role in the synthesis of the neurotransmitter serotonin and carnitine which are critical to brain function and are known to effect mood. Vitamin C is a potent antioxidant in addition to good stress buster.(14) Literary review of the drugs of Hridya Mahakashaya: Amra (*Mangifera indica* Linn): *Mangifera indica* is commonly known as mango belongs to anacardiaceae family. Normally height of the tree is about 20 m. It is native to tropical Asia and has been cultivated in the Indian subcontinent for over 4000 years. The seed and bark are mainly used in the Ayurvedic text. Sour fruits are considered to be Hridya and ripen fruits are brimhana (nourishing) in nature. Its leaves are mentioned under 'Pancha Pallavas' (Sastry, 2012). Its Major chemical constituents are Mangiferin, Mangiferolic acid, indicenol (Sharma et al., 2017). Mangiferin, being a polyphenolic antioxidant and a glucosyl xanthone, it is a strong antioxidant, anti lipid peroxidator, immunomodulator, cardiotoxic, hypotensive, wound healer, and antidiabetic. The fruit pulp contains vitamin A and C, β -carotene and xanthophylls. Thus Fruits of mangoes are good source of antioxidants in human diet and are beneficial for heart (Hasan et al., 2014). Aamratak (*Spondias mangifera* (Linn. F. Kurz.) *Spondias mangifera* is also known as wild mango or Ambara. It belongs to Anacardiaceae family. It is an evergreen as well as deciduous tree which is distributed throughout India, Sri Lanka and

SouthEast Asian countries. The tree has a strong, stout trunk having a smooth ash-coloured bark; having 27 meters of height. The Flowers are bisexual and fruits are yellow in colour; with fleshy pulp which is finely flavoured and edible. The seeds bear ridges and have hard and fibrous surface. *S. pinnata* is the species which grows well in light abundant areas. The fruits when unripe are often used for making pickles. Almost all parts of the plant like young leaves, flowers and fruits are edible. In Ayurveda, it has been used as a potent medicine in case of haemorrhagic diseases. The unripe fruits were used as an aphrodisiac. The fruit juice is useful antiscorbutic. The fruit pulp cures rheumatism and is used in bilious dyspepsia. The fruit is a valuable source of vitamin C, vitamin A and Iodine. The fruit contains sucrose, glucose, and fructose. The fruit is found to contain betaamyryn, oleanolic acid and amino acids- glycine, cystine, serine, alanine leucine; and polysaccharides (Bora et al., 2014). In a study conducted on fifteen edible fruits found in Nepal; it was found that *S. pinnata* showed a more potent free radical scavenging activity than Vitamin C. The extracts of *S. pinnata* showed a 16% radical scavenging activity at 5 μ g/mL whereas Vitamin C only showed 5% radical scavenging activity at 5 μ g/mL (Chalise et al., 2010; Hazara et al., 2008). The exocarp of the fruit of *S. pinnata* also produced significant thrombolytic activity (Bora et al., 2014). Lakucha (*Artocarpus lakoocha*) It belongs to Moraceae family and commonly known as barhala. It is called Monkey Jack in English and in Ayurveda it

is called Lakuch, Kshudra Panas, Granthiphala and Pitanaasha. It is a medium to large deciduous tree dropping its leaves for a short time at the beginning of the dry season. Fruit is a syncarp (the entire female inflorescence forms a fruit), irregularly rounded, green when young, turning yellow at the time of maturity, later brown. The size of fruits differ with the diameter of 5-10 cm and their weight varies between 200-350 g. The number of seeds per fruit varies between 10-30. In most places Ripe fruits are collected at the end of June to early August. It is found on the western coast of Konkan Kerala and Tamil Nadu. The unripe fruit is ushna virya (hot), amla ras pradhan (sour), madhur (sweet), causes tridosha impotency, loss of appetite. The riped fruit is sour and sweet, aphrodisiac, alleviate the vata and pitta dosha, and improves taste and appetite. The seeds are good purgative for children (Pandey, 2012,p.30-32). It has many pharmacological activities such as anti-inflammatory, antiviral, anticancer and anti-HIV (Gautam & Patel, 2014). The study has revealed the presence of Alkaloids, flavonoids, phenols, tannins, lignins, glycosides (Krishnamurthy & Sarla, 2013). Karamarda (*Carissa carandas* Linn.) It is a common herb of Apocynaceae family found throughout India mainly in the semi-arid regions. It is commonly used as a condiment or additive in Indian pickles and spices. Traditionally the plant has been used in the treatment of scabies, intermittent fever, anemia etc. In Ayurveda text it is described as pita-samirjit (allivate vata and pitta dosha) and it is used in the treatment of toxicity and liver disorders

children (Pandey, 2012,p.81- 82). Recently many other biological activities are reported such as analgesic, anti-inflammatory, anti pyretic, cardiogenic and histamine releasing. Additionally it has shown wide range of evidences for its, hepato-protective, free radical scavenging, anti-rheumatic, antibacterial, antiviral and anticonvulsant activity. The results of many studies suggest that *C. carandas* fruit extract was the most potent antioxidant as it exhibit exceptional reducing power, scavenging activity against nitric oxide, DPPH and peroxide radicals (Arif et.al. 2016). Vrikshamla (*Garcinia indica*) It is commonly known as kokum and it belongs to guttifereae family. It is a beautiful evergreen tree mainly found along the western coast of the Konkan, Goa, and Kerla. It is cultivated commercially. The tree blooms between November to February and the fruits ripe in April-May. The berries are usually deep purple to pink in colour and occasionally whitish. These are of lemon size. The fleshy rind of the fruit is juicy and acidic. It contains the important chemical constituents viz, Garcinol, Hydroxycitric acid and Anthocyanin pigment. Anthocyanins are well known for their antioxidant, anti-inflammatory, and anti-carcinogenic activities (Shrikant et al., 2014). In Ayurveda, it is used for treating piles, sprue, abdominal disorders, and cardiac disease, etc. According to Acharya charak it is beneficial for vata-shleshmic disorders (Sharma, 2003). Deore.et al. reported the antioxidant and hepatoprotective effect of aqueous and ethanolic extract of *G. indica* fruit rind

(Elumalai & Eswaraiha, 2011). Amlavetas (*Garcinia pedunculata* Roxb.) *Garcinia pedunculata* is a plant found in northeast region of India and belongs to Guttiferae family. It is considered to have versatile therapeutic properties. It is used by the people of this region as a medicinal plant for healing different gastrointestinal disease. *G. pedunculata* is a rich source of Flavonoids, Xanthones, Benzophenones and phenolic acids. It has been revealed that *G. pedunculata* have beneficial antioxidant properties (Sharma et al., 2016). It is mentioned under Phala varga by Charaka. According to him it is mild purgative, and alleviates vata and kapha dosha. It is indicated in colic, stone, indigestion (Sastry, 2012, p.657) *Kola Ziziphus jujuba* *Kola* consists of dried fruit pulp (devoid of seed) of *Zizyphus mauritiana* Lam. Syn. *Z. jujuba* Lam. (Fam. Rhamnaceae); is a small, evergreen subdeciduous tree, wild and also extensively cultivated throughout the country and is found in Himalayan region upto about 1370 m. The plant *Ziziphus jujuba* is also known as Desi Ber. Fruits of *kola* contain vitamin C, sugar and minerals. It is sweet, sour and astringent in taste.

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