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ANALYTICAL STUDY OF HEART IN AYURVEDA: A REVIEW ARTICLE

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ABSTRACT

The heart, the pumping organ of the circulatory system, is situated in middle mediastinum, enclosed within the pericardium along with the great vessels. Optimum and efficient circulation of blood throughout the body ensures proper nutrition, excretion, gaseous exchange, thermoregulation and hemostasis, digestion and metabolism, intelligence, immunity and life in the body. This fairly explains the importance of these four chambered organs in our body and its vulnerability to any kind of disturbances in the body and reason of CVD being leading cause of death. It is important to understand this organ thoroughly for fair understanding and management of that each case of CVD. In Ayurveda hridaya is considered under trimarma and dasa prana ayatana which duly signifies the importance of this organ in causation of grave diseases. However, the term Hridaya mentioned in Ayurveda is denoting an organ which controls the passage of prana by collecting, distributing in a rhythm. This definition indicates that hridaya is the heart and hridaya is the brain as well. Hridaya, however, is considered one among the kosthanga by Acharya Charak and one among kosthas by Acharya Susruta. These descriptions are surely appreciating about the “uruhstha hridaya”. The present review article encompasses the concept of heart in Ayurveda i.e., hridaya (urahstha) in Ayurveda; including its nirukty (etymology), sharira rachana (anatomy), sharir kriya (physiology) with modern insights where ever relevance is there.

Keywords: heart, *hridaya*, trimarma, ayurveda, uruhstha

INTRODUCTION

The human heart is responsible for providing tissues with vital nutrients and facilitating waste excretion. Consequently, cardiac dysfunction causes devastating physiologic consequences. Disruption of any element of the heart - myocardium, valves, conduction system, and coronary vasculature, can adversely affect pumping efficiency thus leading to morbidity and mortality. cardiovascular diseases (including coronary artery diseases) is number one cause of worldwide mortality, with about 80% of the burden occurring in developing countries.

In Ayurvedic classics heart is the “Urastha Hridaya”. It is considered one among the three organs (trimarma) which needs constant vigilance and a keen eye on lifestyle and gastronomy, to avoid diseases with poor prognosis.

NIRUKTI: The word “hridaya” in Ayurveda is a synonymous for the word heart. “Hridaya” is derived from three verbs (as per satpathbrahman and brihadaranyak). “Hrun” which means to abduct, “dad” which means to donate and “in gatou” self-generated rhythmicity for contraction and relaxation.

The hridaya thus means an organ which draws fluid including blood from all over the body and then supplies it to all the parts of the body. The hridaya is a vital organ and if affected, may cause instantaneous death. [

DEFINITION OF HRIDAYA:

The marma located in the thorax (uras) in between the two breast (stanyormadhye) and near to that of esophageal orifice (amashaya-dwar), where resides the tamas, rajas and sattva guna, is known as hridaya.

SYNONYMS: According to Amarkosha: cheta, swantam, hrit and manas. According to Charak : mahaphala, mahat and artha Hridaya and dasa dhamani

ANATOMY (RACHANA): Bruhadaranyaka Upanishad describes the hridaya as a fleshy muscular organ (mamsa-pesichayo) resembling a red lotus bud and hangs with its apex downwards; from which vessels and capillaries spread all over the body. Ten major blood vessels originate from it.

Location: Uras (thorax) Hridaya is located on left side of kloma and above yakri and pleeha and to the right of phupphusa Hridaya is located in the thorax (uras) in between the two breasts (stanyormadhye) and near to that of esophageal orifice (amashaya-dwar).

Kala: Kala is the fine structure that separates the dhatus from their asayas. Thus, the mamsa dhara kala is stated to separate and support the mamsa dhatu, in which latter are to found siras, dhananis, snayus, and srotamsi.

Marma: Hridaya is a type of sira marma. sadyo-prana hara marma, one among trimarma and dasa vishesa ayatana, an asaya and a Kostha as per Susruta and a Kosthanga as per Charaka and Vagbhata.

Sandhi: There are three sandhis in hridayam. And the type of sandhi present in hridaya is “mandala sandhi”. Peshi: Hridaya consists of two peshis.

EMBRYOLOGY: Embryologically, the hridaya originates from the essence of shonita and kapha tissues and develops into a muscular organ. Genetically, in the development of the hridaya maternal influence dominate. Hence in an individual with hridroga, it is particularly important to inquire regarding hridroga on the maternal side. Hridaya become more obvious by the 4th month of garbha utpatti krama. According to Charak, it starts functioning in the third foetal month.

PHYSIOLOGY (KRIYA): The hridaya is a very sensitive organ having its own inherent rhythm. It keeps on contracting and relaxing on its own. The vata system also controls its rhythmicity which continues lifelong in a cyclic manner. The hridaya is more active during the day. Hridaya provides rasa, rakta and oja to entire srotas of the body through siras like that of the mountain ranges which provide water and there by nutrition and life to the entire world through rivers.

The hridaya, itself being a muscular organ, derives its nutrition from rasa, its nutrition from Rakta and its vital energy from Oja. Its movements are controlled by vyana vayu (Autonomic nervous system). Sadhaka pitta resides at Hridaya. Its functions are: shourya (courage, bravery), bhaya (fear), krodhra (anger, rage), harsha (excitation, cheerfulness), moha (delusion, fainting). Also Atharva Veda has mentioned that hridaya and Shiras are sutured together, because of this relationship, vayu is located in the upper portion of

mastishka and it controls everything. Again, the terms manas, chitta, buddhi and hridaya represent different functional aspects of the mind and are not distinctly different organs located in various parts of the body. So every disturbance or involvement of hridaya affects sadhakpitta. Avalambaka kapha bear a striking resemblance to the mode or supply of nutrition to the hridaya from rasa; support lubrication provided to hridaya by the pericardial fluid and synovial fluid to the thoracic joints (trik pradesha), and the replenishment of fluid to the fluid systems of the body. Any of the eight basic elements viz. rasa, rakta, muscular tissue, Oja, prana vayu, vyana-vayu, sadhaka pitta and avalambaka kapha when affected, can disturb the function of the hridaya and cause hridroga. On the other hand these elements in hridaya are affected and form Hridroga owing to other causes or diseases of other organs in the body.

CIRCULATION OF THE BODY FLUIDS I.E. RASA IN THE BODY:

The body fluids i.e., the first dhatu (rasa) are derived from the diet. After digestion and absorption, the food is converted into “rasa” which carries the nutrients for all the tissues of the body. It passes from intestines into blood vessels and then to the hridaya by the action of saman vayu. From the hridaya, it is pumped through its main blood vessels by the action of vyana vayu into millions of capillaries.

The circulation is controlled by autonomic nervous system i.e., by vyana vayu mainly and by samana vayu. From capillaries, rasa penetrates all the tissues and cells of the body. The fluid from the tissues is brought back to the hridaya by capillaries and veins. Rakta is derived from rasa, and it circulates together with rasa. Ayurvedic literature emphasizes on the circulation of rasa whose prime function is to supply nutrients to tissues. Rakta floats in rasa in the blood vessels and transports oxygen to tissues. The hridaya pumps rakta along with rasa all over the body. Circulation of oja: Hridaya is the seat of the vital fluid oja.

Rasa is derived from diet. All the nutrients in rasa cannot be directly utilized by tissues as such. These nutrients are modified by the Agni and converted into vital fluids which can be utilized by all the tissues. Oja is the essence of the vital fluids of all the tissues of the body which supplies energy to different tissues. Oja is circulated into all tissues by the hridaya through blood vessels. Life as well as health and happiness depend on oja. In regards the

mode of transport and circulation of this Oja, to which all dhatus are stated to contribute, Cakrapanidatta notes that, "Param teja which is the sara of all dhatus (comparable to the ghee of the milk and the honey of the flowers and fruits), being in the hridayam, mixes with rasa, and circulates through the dhamanis and performs (actions spoken of as) tarpana of the entire body. It represents the Bala of all the dhatus and is present in the organism, from the time of the fertilization of the shonita by shukra, due to its swakarma (properties).

Blood supply:

Blood is transported to myocardial cells by the coronary arteries which originate immediately above the aortic semilunar valve. Most of the blood flow to the myocardium occurs during diastole. There are three major coronary trunks, each supplying blood to specific segments of the heart:

- Anterior descending branch of the left coronary artery.
- Circumflex branch of the left coronary artery.
- Right coronary artery

Venous drainage:

There are three venous drainage systems in heart:

1. Coronary sinus
2. Anterior cardiac vein
3. Thebesian veins About 60% of the venous blood of the heart drains into the right atrium via the coronary sinus and remaining 40% drains into the different chambers of the heart via anterior cardiac veins and thebesian veins.

Lymphatic drainage:

The lymphatic drainage of the heart flows from subendothelial vessels to an extensive capillary plexus lying throughout the sub-epicardium. These capillaries converge in collecting lymphatic channels which run alongside the coronary vessels which forms the right lymphatic ducts. There are two major lymphatic channels: Right coronary channel
Left coronary channel

CONCLUSION

The term “Hridaya” was first seen in Atharva Veda and was considered as an organ system comprising sirastha hridaya i.e. brain and urustha hridaya i.e. heart. This urustha hridaya in Samhitas was considered to be hollow organ (kostha), made up of two pesi, and three mandala sandhis, and in a shape of lotus and connected with ten maha dhamanies i.e. pulsating vessels and supply blood, nutrition, oxygen and thus immunity to the entire body thus anatomically, physiologically and functionally urastha hridaya is similar to that of heart.

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