ABSTRACT

Ayurveda is a basic science of life having holistic approach. It considers human body composed of Tridosha, Sapta Dhatu, Three Mala and twelve Prana. Hridaya is mentioned as a Pranaytana (resort of life) in Ayurvedic literature which mentions its significance at physiological level to maintain vitality as it functions continuously from birth to death. Hridaya is involved in the flow and conduction of Prana (vital energy in form of Rasa-Rakta) thus it is considered as Pranvaha and Rasavaha Srotas Moola. In Ayurvedic classics it is classified in Shriogata Hridaya and Urogata Hridaya, which indicates the fine association between heart and brain. Hridaya is originated from essence part of Rakta and Kapha Dosha during 4th month of fetal life. It has immense importance as it is considered as Kosthang, Pratyanga and Marma. Ten vessels (Dash Mahamoola) arise from the Hridaya by which Prana in form of Rasa Rakta and Oja is circulated throughout the body. Rasa Dhatu is circulated from Hridaya to all body under influence of Vyana Vayu result in nourishment of all Dhatus. Thus Hridaya has immense importance in maintaining vitality of an individual.

Keywords: Hridaya, Pranayatana, Prana, Pranvaha, Rasavaha Srotas

INTRODUCTION: Ayurveda is an ancient science of life which basically deals with the focus on quality of life of an individual. Ayurveda is a combination of two terms; “Ayu” which means life and “Veda” which indicates knowledge that means, it aims towards the longevity of life in terms of being healthy in all aspect i.e., physically, mentally and socially. Here the term “Ayu” is a fine integration of four essential parts, Satva (Manas), Atma (soul) Indriya (the senses) and Sharir (the body) and the fine combination of all these are said to be the medium to conquer the Purushartha (goal of life) i.e. Dharm (moral duty), Artha (economic prosperity), Kama (Pleasure) and Moksha (spiritual liberation). Sharir is basically composed of Dosha, Dhatu and Mala. Apart from these entities there are so many structures which are having immense significance both anatomically and physiologically, to maintain the life. In other words we can term as Pranaytana (resort of life/vitality) . In our classical texts there are ten structures which are considered as Pranayatana. Hridaya (heart) is one of them and is very important organ for the body. In Ayurvedic literature Hridaya is mentioned in different context with different means so it is very necessary to review Hridaya and to understand it in both anatomical and physiological purview. The present article deals with the literary review of Hridaya.

AIMS & OBJECTIVE:

- To review the Hridaya in terms of physiological aspect.

MATERIAL AND METHODS:

Review of literature is done from various classical Ayurvedic texts and matter available on internet and published journals.
DISCUSSION: It is important to understand about Hridaya, that what it is exactly, where it is situated, what its Panchbhautik composition is, how it is originated and developed and how it does function. So very first coming to the derivation of term Hridaya, etymologically it is composed of as ‘Hri’ + ‘Da’ + ‘En’ where ‘Hri’ means uptake (of Rasa and Rakta from entire body), ‘Da’ means to supply (the Rasa and Rakta to body) and ‘En’ means the movement or continue function. Overall it can be said that the term Hridaya is combined indicator of all the three functions mentioned above.

Hridaya in Ayurvedic literature: All the ancient Ayurveda literature are written in Sanskrit and in terms of language it is a very superior language having lots of meaning of the same word or term which are to be understood according to the context. Same case is with Hridaya, sometimes it supposed to be Mastishka and in other context, when Manas and Indriyani are considered Hridaya is taken as root of Pranvaha Srotas and Rasavaha Srotas situated in Urogua (Thoracic cavity).

- “Hridaya Fufulsstanam
- Hridaya having Dasamahamoola Sira and reservoir and condutor of Rasatmaka Oja. 4
- Raktapadmakaram Adhomukham 5
- Sa-spandmanam
- Kapha -Shonit Prasadjam6

All the above references make clear view about the Hridaya which is considered to be the root of Pranvaha Srotas.

Chakrapani while explaining the difference about Urdhva Hridaya (Shirogata Hridaya) states that when Manas is enforced to its function it works under Shirogata Hridaya and when not in function it is attached with Urogata Hridaya.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Characteristics</th>
<th>Urogata Hridaya</th>
<th>Shirogata Hridaya</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Utpaati</td>
<td>Shonit- Kapha Prasadjam</td>
<td>Not described as</td>
</tr>
<tr>
<td>2</td>
<td>Shape</td>
<td>Paundrika Sama (like a lotus)</td>
<td>No shape described</td>
</tr>
<tr>
<td>3</td>
<td>As Kosthang</td>
<td>Considered as Kosthang</td>
<td>Not considered as Kosthang</td>
</tr>
<tr>
<td>4</td>
<td>Situation</td>
<td>In Vaksha Guha (thorax)</td>
<td>Somewhere in between Shirah and Kapal</td>
</tr>
<tr>
<td>5</td>
<td>Functions</td>
<td>Chetna Adisthana, Rasa samvahana, root of Pranvaha Srotas</td>
<td>Holding up Medha, Buddhi, Smriti Dharan, etc</td>
</tr>
</tbody>
</table>

On the basis of above discussion it is supposed that Hridaya which is said to be the root of Pranvaha Srotas is the organ present in the thoracic cavity and it is always functioning and performing the process of Rasa - Rakta Samvahna.

Hridaya as per anatomical purview: Acharya Charak says ten Siras which are considered to being Mahamoola and Mahaphala, Shadang Sharir (two upper limb, two lower limb head and trunk) all sense organs their subjects, Atma, Manas and its subjects all are reliant in Hridaya and Hridaya has synonymously considered as Artha and Mahat. 7

Acharya Sushrut has stated that, Hridaya is composed of finest and essence part of...
Shonit and Kapha and all Pranvaha Dhamnies are reliant in Hridaya.  

As Pratyang:  
Hridaya has been considered as Pratyanga according to Sushrut.  

As Kosthang:  
While mentioning about Kosthang Acharya Charak has placed Hridaya among eight Koshtang.  

As Marma:  
Acharya Sushrut has conceived Hridaya as Sadhyo Pranahara Marma which is located between Stanmoola and near the orifice of Amashaya.  

Location of Hridaya:  
Hridaya is located twelve Angul below the Greeva Moola and twelve Angul above the Naabhi.  

Shape of Hridaya:  
All Acharya have elucidated the shape of heart as Padmakara, Kamalmukulakara but Sushrut has added one more specific feature and described it as “Padmakaram Adhomukham” (lotus facing downwards).  

Hridaya Kostha:  
There is no clear cut description about the chambers/Kostha of Hridaya but in the description of the functioning “Vidhamyante Samanatatah” it can be understood the as the movement of all four chambers of heart.  

Hrid-Peshi:  
According to Sushrut and Vagbhatt there are two Peshis in Hridaya.  

Hridaya in relation to Other Organs:  
Below the Hridaya in left side Pleeha and Fuffus are situated and in right side below Hridaya Yakrit and Kloma are situated.  

Vessels of Hridaya:  
All the Acharya have mentioned ten main vessels (Das Mahamoola) which are further divided into minute vessels. These vessels play significant role in Rasa Rakta Samvahana.  

Origin and development of Hridaya:  
Garbha is formed by the combination of sperm (Shukra), Ovum (Shonita), Atma(soul), Prakriti (Primordial substances) and Vikriti in the Garbhashaya. Panchamahabhoota act upon the Garbha, helps it to mature and develop.  

- Vayu Mahabhoot is involved in Vibhjana Karya. It divides the Garbha into different fragments.  
- Tejas Mahabhoota is involved in Pachana Karya. It helps in processing and bringing about maturity Garbha  
- Apa Mahabhoota is involved in Kledana Karya. It helps in Nourishing the Garbha and its component.  
- Prithvi Mahabhoota is involved in Samhanana Karya. It helps in bringing out the integrity and compactness in all components.  
- Akash Mahabhoota is involved in Vivardhana Karya. It helps in the coelomicity of the foetus. It provides space for the developing organs and various components.  

Along with all factors mentioned above there are some other factors which also helps in determining the fate of the Garbha and formation of complete Shareera. There are Rasaja, Satmayaj, Satvaj, Aatmaj, Pitraja and Mattraja Bhava. Among all these six Bhavas, Mattraja and Pitraja Bhava play a key role in determining the origin and development of various body parts.  

All soft organs including the Hridaya (heart) are derived from Mattraja Bhava. These organs are present in the Beejbhaga as Beejavyava in subtle form. After Shukra Shonit Samyog and the combined effects of
all the necessary factors and by the actions of Mahabhoota, they start to differentiate and to develop day by day.

Though the subtle form of Hridaya is present in the Beejbhaga during the Shukra Shonit Samyog but after that by the physical change over process it is transformed in a more compact form. All this process happens in the first two month of fetal life. In the third month along with the minute chamber form of Hridaya, Indriiotpatti and Vedanubhooti is also originates, the Hridaya become more expressed developmentally and the Chetna Dhatu is also expressed now. Now this condition is known as Dauhrid Avastha of Garbhini. In fifth month of fetal life there is Mansa Shonit Upchaya in the heart and up to sixth month more strength is poured in the Hridaya. Up to the end of seventh month Hridaya has optimized up to its level best functionally. During eighth month there is reciprocal transport of Para Ojas from mother to Fetus thus the embryological development of Hridaya occurs. 19

Panchmahabhautik composition of Hridaya

At the time of Shukra Shonit Samyoga, genetic material for the development of Hridaya is always present in terms of Beejbhagavaya in Beeja. When attached to Garbhhashya, by the impact of all the Garbhottpadak Bhavas it starts to develop. As discussed earlier among all six Garbhottpadak Bhavas, Matrija Bhava contributes in the origin and development of Hridaya. Rasavaha Nadi which is attached from mother to fetus performs two main functions; one is to provide nutrition and second is to transport the Ojas from mother to fetus. Eventually by the action of Agni Mahabhoota (Metabolic activity, Pachan Vyapar) and Vayu Mahabhoota (Vibhajana) the Mansa Dhatu present as Anu form in Rakta and by the association of Kapha Dosha (Avlambaka Kapha) Hridaya is developed as an organ.

Under the concept of “Sarve Dravyam Panchbhautikam Asmin” all the Chetan and Achetan Dravya are Panchmahabhautik. As Shukra and Shonit being Panchmahabhautik all the organs deriving from are also Panchmahabhautik in their composition. Hridaya being composed of the essence part of Rakta and Kapha, it is understood that Panchbhautik composition of Hridaya is predominantly Agneya, Prithvi and Apyeya.

Function of Hridaya:

Hriday is the resort of Rasa, Vatadi Dosha, Satva, Buddhi, Indiya, Atma and Ojas and it is the superior most place for Antaratma. It holds the all Dash Dhamni, Prana, Apana, Manas, Buddhi etc like the centre of a cartwheel. All the ten Vessels of Hridaya circulate the Rasa in form of Ojas and all these ten Vessels deftly help in the all body functions. Dushit Rasa in form of Rakta Dhatu for getting purified comes to the Hridaya and circulates to Fuffus after getting purified it comes back to the Hridaya and by the function of Vyan Vayu it is pumped out to whole body. So in brief heart functions to maintain vitality, it transports the Prana in form of Rasa Rakta and Ojas to entire body.

Hridaya as a Moola of Pranvaha Srotas and Rasavaha Srotas:

Acharya Charak and Sushrut both have included Hridaya as the Moola of Pranvaha Srotas and Rasavaha Srotas because it actively takes part in respiration and Rasa Rakta Samvahan. As mentioned by Acharya Charak the functional area of Pran Vayu include Moordha, Urah, Kantha, Jihva, Asya, Nasika and in
functions for Shwasna and Ahara along with Stivana, Kshwyathu, Udgar\textsuperscript{22}. In the process of Ahara Paka, Pran Vayu helps in the propagation of Ahara from mouth to the Koshta\textsuperscript{23}, where Aharapaka take place and Rasa Dhatu is formed. This Rasa Dhatu (in form of Rakta) along with Prana is sent to the Hridaya under influence of Samana Vayu\textsuperscript{24}, in Hridaya the Rasa, under influence of Vyan Vayu\textsuperscript{25}is circulated through-out the body to nourish the further Dhatu and after that the violated Prana (due to Dhatu Paka) is returned back to Hridaya now it is sent to Fuffusa from where it is expelled out and after getting saturated it returns back (it includes both phenomenon outer respiration and cellular respiration) thus it is purified and send to the Hridaya again and from here it is re circulated to the body and tissue. Thus it is clear why Hridaya is stated as common Moola of both Pranvaha and Rasavaha Srotas.

On the basis of above discussion it can be simply understood that Hridaya performs conduction of Rasa which contain nutrients for body tissues, Rakta the red fraction, Prana the fraction that is produced by the act of respiration, and Ojus the same time. But is actually the blood the tissue which contains all the above components and continuously flow through the body by the pumping of heart and performs all the functions\textsuperscript{26}.

CONCLUSION:

On the basis of above discussion it is concluded that Hridaya is very important organ in our body and it is well emphasized by our Acharya. Physiologically it performs very important functions like Rasa, Rakta, Prana and Ojus Samvahan, by the blood circulation process. It performs all these functions with the mutual coordination with respiratory system. Thus it is considered as Moola of Pranvaha Srotas and Rasavaha Srotas. It is the resort of Ojas and helps to maintain life from birth till death.

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