



Concept Of Sira And Siravedha Procedure (Bloodletting) In Ayurveda- A Research Analysis

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Abstract

Sushruta Samhita is one of the 3 great *Brihatrayi* of *Ayurveda*. *Sushruta Samhita* is the best one in *Sharira (sariresushrutahsresthah)*. *Ayurveda* is the holy science among all the pathies. In ancient text, description of *Sharira* and its anatomical structures described very manually.

According to *Acharya Sushruta* has described about *Siras* on *Shareerasthan Adhyay 7*

SiravarnavibhaktiSharira and *Adhyay 8 SiravyadhidhiSharira*. *Sushruta* has classify the *Sira, Dhamani and Srotas*. *Caraka* has described *Sira, dhamani and srotas* are not separately.

The term *Sira* means of blood vessels and other place it's called nerves. *Sushruta* has given 4 types of *Siras- Arun, Neela, Lohita, Sweta*. These are respectively having *doshas* are *Vata, Pitta, Kapha* and *Rakta*. It is very difficult to know about it like Modern Anatomy. We can describe *Sira* is the vein, which carry deoxygenated blood from all over body towards the heart. The blood from *Siras* by flow velocity called "*Saran kriya*". Total 700 *Siras* in our body. *Siras* are having two types are *Vedhya* and *Avedhya Sira*. *Vedhya Siras* are called puncturing vein and *Avedhya Siras* are called not puncturing vein. *Vedhya Siras* are 602 in no. and *Avedhya Siras* are 98 in no. Out of total 700 *Siras*, 40 *moola Sira*, which are divided into 4 groups and these are *Vatavaha, Pittavaha, Kaphavaha* and *Raktavaha* and 10,10,10,10 in no. respectively. To explore and find out the references in relation to *sira* in *Sushruta Samhita*. To review the concept of *sira* in *Sushruta Samhita* and correlated with current situation. Different references are available in *Sushruta Samhita* and Modern Anatomy texts regarding *Sira*. *Siras* are correlated with the blood vessels, lymphatics and nerves in Modern Anatomy.

Keywords- *Sira, Dhamani, Artery, Vein, Sushruta, Srotas*.

INTRODUCTION

Ayurveda literally means traditional science of life. *Ayurveda* complete normal state of mental and physical health. The *Sushruta Samhita* is one of the 3 great *brihatrayi* of *Ayurveda* that is represents the surgery. *Sushruta Samhita* is the best one in *Sharira Sthan (Sariresushrutahsresthah)*. Anatomy is considered a prime learning issue in the operating room. *Sushruta Samhita* is given for anatomical details before surgery. Knowledge of anatomy is fully developed during the period of *Sushruta Samhita*. Knowledge of anatomy is derived from animals during sacrifices. *Sushruta* was the first scholar and father of anatomy who described the method of dissection of cadaver and he is also given knowledge about study of anatomy¹. *Sushruta Samhita* is the best one in *Sharirasthan*. In *Sushruta Samhita Sharira sthan*; *Sira* described in *SiravarnavibhaktiSharira* and *Siravedhan* is described in *Siravyadhidhi Sharira*. *Sira* meaning blood vessels at one place, nerves at other place. In *Sushruta Samhita*; *Siras* are used in 2 terms; blood vessels and veins. *Siras* are called other names like; artery, vein, capillary, lymphatics. *Sira marma* are called nerves. Lymphatics also takes part in nutrition and they circulate lymph. *Sira* derived from "*hira*". *Hira* is blood carrying channel towards the heart². *Sira* is tubular structure which carry *rasa* and *rakta*. *Sira* is synonyms of *srotas*³. *Sushruta* defined separately *sira, dhamani, srotas* and define in "*Dhamani vyakarana Sharira*" and define *Dhamani* and *Srotas* are only in *Siravikara*⁴. *Sushruta's* description regarding the origin of *sira* to be correct⁸. *Sira* supply the nutrition to the body. According to *Sushruta Samhita*; *Sira* is originate from umbilicus then spread upward, downward and oblique in direction during embryonic life⁷. In foetal life, veins are attached umbilicus so provide nutrition through umbilical cord but after birth, *Sira* are no more exist. In *Sushruta Samhita*, *Sira* called "*Nabhiprabhava*" because of they start or end in umbilicus in uterine life. As a garden or agricultural field is developed wet by water conveying big and small channels, similarly the *Sira* by their contraction & dilation quality supply towards the body⁹. *Sira* looks like the tendrils. The blood vessels of the body make up a clodes system of tubes, that carry blood from heart to the all over the body and then return to heart. Large arteries leave the heart and branch into smaller ones that reach out of various parts of the body. These splits into smaller vessels called arterioles that penetrate the body

tissues. Arterioles give branch into capillaries. Capillaries give branch into venules (small veins). Venules connect with large vessels and then return blood to the heart. The walls of arteries, veins and capillaries all are separate in nature¹⁰. The walls of both arteries and veins are having 3 coats, they differ in thickness. Inner and middle coat of arteries are thicker than veins so arteries are more elastic in nature and spreading when blood surges from beating heart. The walls of artery are more rigid than vein walls. One way valves in wall of veins blood flowing in one direction. The wall of capillaries is thicker one. Artery carry blood away from the heart and veins carry blood toward the heart¹². Dilation and contraction is function of arteries. Sympathetic and parasympathetic nerves are used for vasodilatation and vasoconstriction. Because of palpitation the blood circulates all over the body. Sciatica is characterized by constant aching pain which felt in lumbar region it may radiates buttock, thigh, calf and foot. It occurs 30-40 years of age and affects both the sexes (male and female) equally²². *Vatakantaka* (planter fasciitis) is *Vata nanatmaj vyadhi*. It is a painful condition of heel caused by improper placement of foot on ground and it is common occurs in 10% general population. Women are twice affected than man²³. *Sandhigatavata* (Lumbar spondylosis) is life time incidence of low backache approximately 60-85% in adults and lumbar spondylosis is responsible for all backache²⁴.

□ **Sushruta given 4 reasons for differentiation of 3 structures**⁵–

- 1) *Vyanjanayatvatam* (different features)- *Siras* having different colours like crimson red, white, blue and red. But no differentiation in *Dhamanis* and *Srotas*.
- 2) *Mulasanniyamat* (originating point)- *Siras* originating point are 40, *Dhamanis* are 24, *Srotas* are 22.
- 3) *Karmavisesyat* (specific function)- *Siras* are having contraction and dilation property. *Dhamanis* are having sound, smell, vision, taste etc. *Srotas* are having air, food etc.
- 4) *Agamata* (scriptural authority)- In *Ayurveda*; *Sira*, *Dhamani* and *Srotas* are separately in nature in many places.

• **Structures look similar because**⁶ –

- 1) *Parasparasannikarshata* (mutual proximity) - *Sira*, *Dhamani* and *Srotas* are locate very close in the body.
 - 2) *Sadhruasyagama* (similar authority) - Due to transport of *rasa*, no distinct differences between *Sira*, *Dhamani* and *Srotas*.
 - 3) *Sadhruasya karma* (similar function)- common function of the 3 structures are transport of *Doshas* and *Dhatus*.
 - 4) *Sukshamat* (minuteness/scantiness) –Due to its minute/scanty in nature, differentiation is difficult.
- *Sira* are classified into 4 types these are *Vatavaha*, *Pittavaha*, *Kaphavaha*, *Raktavaha*.

• (TABLE NO- 1) Numbering of *Siras* are 13-

| Type of <i>Sira</i> | <i>Varna</i> | <i>Guna</i> | <i>Karya</i> (function) | Modern correlation |
|-----------------------|---------------------|-----------------------------------|---|--------------------|
| <i>Vatavahasiras</i> | <i>Arun varna</i> | <i>Puryantevayunasira</i> | <i>Kriyanamapratighatam, Amohambuddhikarmanam.</i> | Arteries, Nerves |
| <i>Pittavahasiras</i> | <i>Neela varna</i> | <i>Usna</i> | <i>Bhrajisnutam, Annaruchi, Agnidiptam, Arogatam.</i> | Veins |
| <i>Kaphavahasiras</i> | <i>Gowra varna</i> | <i>Sita and Sthira</i> | <i>Snehamangeshu, Sandhinamsthairyam, Balamudirnatam.</i> | Lymphatics |
| <i>Raktavahasiras</i> | <i>Rohini varna</i> | <i>Na atiusna and naatishital</i> | <i>Dhatunampuran, Varna, Sparshgyanamamsayam.</i> | Capillaries |

In *Ayurvedic* classics the nervous system is not described properly but functions of nervous system have been described through the blood vessels. The *Vayu* which spreads in the blood vessels has been held responsible for performing the functions of nervous system. So *sira* is correlated with the blood vessels.

• (TABLE NO. -2) *Siras* in our body¹⁵-

➤ **VEDHYA SIRAS-**

| DISEASES | VEDHYA STHAN | ACCORDING TO GHANEKAR TIKA (MODERN CORRELATION) |
|--|---|---|
| <i>Slipada</i> | 4 Angula above or below <i>Gulf region</i> | Long saphenous vein |
| <i>Galaganda</i> | <i>Urumula</i> | Femoral triangle |
| <i>Apachi</i> | <i>Indrabastiadhah 2 Angula</i> | Small saphenous vein |
| <i>Krostukshirsha, Khanj, Pangu, Vatavedana</i> | <i>In Jangha Gulf upari 4 Angula</i> | Small saphenous vein |
| <i>Grudhrasi</i> | <i>Janu Sandhi upariadhoh 4 Angula</i> | Popliteal vein |
| <i>Padadaha, Padaharsha, Avabahuka, Vatakantaka, Chippa, Vicharchika, Vatarakta etc.</i> | <i>Vrihimukhdvarakshipramarmaupari 2 Angula</i> | Dorsal venous arch |
| <i>Galaganda</i> | <i>Urumula sira</i> | External jugular vein |
| <i>Pleehodar</i> | Inner side of <i>Kurpara sandhi</i> or at middle of left <i>Kanistika</i> and <i>Anamika</i> | First dorsal metacarpal vein |
| <i>Yakrutodara</i> | Inner side of <i>Kurpara sandhi</i> or at middle of right <i>Kanistika</i> and <i>Anamika</i> | Median cubital vein |

| | | |
|-----------------------------|---|-----------------------------------|
| <i>Vishwachi</i> | 4 angula Pradesh above or below <i>Kurpura sandhi</i> | ----- |
| <i>Shulayukta pravahika</i> | 2 angula nearby <i>Shroni</i> | Superficial dorsal vein of pelvis |
| <i>Apasmara</i> | Middle of <i>hanu sandhi</i> | Frontal or supraorbital vein |
| <i>Ummada</i> | <i>Sira</i> of <i>shankha</i> and <i>Keshanta Sandhi</i> , <i>Sira</i> of <i>Ura, Apanga, Lalat.</i> | Superior temporal vein |
| <i>Nasa roga</i> | <i>Agrabhaga</i> of <i>Nasa</i> | ----- |

➤ (TABLE NO.-3) AVEDHYA SIRAS-

| REGIONS/ LOCATIONS | NO. | NAME OF AVEDHYA SIRAS IN AYURVEDA | ACCORDING TO GHANEKAR SAMHITA (SUSHRUTA SHARIRASTHANA COMMENTARY) (MODERN CORRELATION) |
|-----------------------------|-----|--|---|
| <i>Sakthies /Bahu</i> | 8+8 | <i>Jaladhara, Urvi, Lohitaksha</i> | Great saphenous vein, femoral vessels, cephalic veins, brachial vessels, axillary vessels |
| <i>Shroni</i> | 8 | <i>Vitapa, Katikatarun</i> | Spermatic vessels, gluteal vessels |
| <i>Parshwa</i> | 4 | <i>Parshva sandhigata Urdhvanga</i> | There is no such big artery and vein in the lateral side of the body |
| <i>Prisththavansha</i> | 2 | <i>Brihati</i> | Subscapular artery |
| <i>Udara</i> | 4 | <i>Medhropari Ubhayata</i> | Inferior epigastric vessels |
| <i>Vaksha</i> | 14 | <i>Hridaya, Stanamoola, Stanarohit, Apalap</i> | Intercostal vessels, internal mammary vessels, lateral thoracic vessels |
| <i>Greeva</i> | 16 | <i>Ashta- Matrika, Krikatika, Vidhura</i> | External, internal carotid artery and jugular veins, occipital vessels, posterior auricular vessels |
| <i>Hanusandhigata</i> | 4 | <i>Sandhi dhamanis</i> | Internal maxillary vessels |
| <i>Jihva</i> | 4 | <i>Rasavaha, Vakwaha</i> | Profunda lingulae vessels |
| <i>Nasa</i> | 5 | <i>Aupnasika</i> | Angular vessels |
| <i>Talu</i> | 2 | <i>Talusira</i> | Palatine vessels |
| <i>Netra</i> | 2 | <i>Apangasira</i> | Zygomatico temporal vessels |
| <i>Karna</i> | 2 | <i>Shabdavahisira</i> | Anterior tympanic vessels |
| <i>Lalatanasanetra gata</i> | 5 | <i>Keshantanugatasira, Aavarta, Sthapani</i> | Nasal branch of frontal vein and branches of superficial temporal arteries. Frontal branch of superficial temporal vein |
| <i>Shankh</i> | 2 | <i>Sankhasandhigatasira</i> | Superficial temporal vessels in the temporal region |
| <i>Murdha</i> | 8 | <i>Utkshapa, Seemanta, Adhipati</i> | Parietal branch of superficial temporal vessels & Branches of occipital and superficial temporal vessels |

• (TABLE NO. -4) Number of *Sira* (Organ wise classification) -

| PARTS OF THE BODY | NUMBER OF SIRAS |
|---------------------------|-----------------|
| <i>Shakhagata</i> (limbs) | 100 |
| <i>Kosthagata</i> | 34 |
| <i>Urdhvajatrugata</i> | 41 |
| Total | 175 |

• (TABLE NO.-5) Importance of *Avedhya Sira* –These are 98 in number.

| AVEDHYA SIRAS AREA | NUMBER OF SIRAS |
|------------------------|-----------------|
| <i>Extremities</i> | 16 |
| <i>Kosthagata</i> | 32 |
| <i>Urdhvajatrugata</i> | 50 |
| Total | 98 |

• (TABLE NO.-6) Importance of *Vedhya Sira*- These are 602 in number.

| VEDHYA SIRAS AREA | NUMBER OF SIRAS |
|------------------------|-----------------|
| <i>Extremities</i> | 384 |
| <i>Kosthagata</i> | 104 |
| <i>Urdhvajatrugata</i> | 114 |
| Total | 602 |

• *Sira Marma*-

The word *Marma* used in classical and non classical texts. *Marma* means vital point in the body. According to *Dalhana*; *Marma* is vital point where injury or trauma is made cause death¹⁷. According to *Sushruta*; *Marma* is vital point in the body where *Mansa, Sira, Snayu, Asthi, Sandhi* are present. In *Pranavahamarma*, having trauma causes death¹⁸. When *marmas* are injured through the *vayu* is increased, it causes severe pain. Because of this, pain consciousness is gradually lost¹⁹. Total no. of *Marma* is 107. According to structure; *Marma* into 5 types. *Sira Marma* is of 41 in no. *Niladhamani* - 4, *Matrika* -8, *Sringataka*- 4, *Apanga*- 2, *Sthapani*- 1, *Phana*- 2, *Stanamula*- 2, *Apalapa*- 2, *Apastambha*- 2, *Hridaya*-1,

Nabhi- 1, Parsvasandhi- 2, Brhati- 2, Lohitaksha- 4, Urvi- 4. Main indication of *Marma* injuries are bleeding and unconscious. 4 types of *Siras* lie in the site of vital point. *Sira* gives nutrition to the body and maintain the body. *Marma* (vital points) is one of the important aspects described in various ancient texts of *Ayurveda*²⁵.

OBJECTIVES

- 1) To understand the concept of *Sira* in *Sushruta Samhita*.
- 2) To review of *Vedhya* and *Avedhya Sira* with modern anatomical structure.

MATERIALS AND METHODS

LITERAL STUDY-

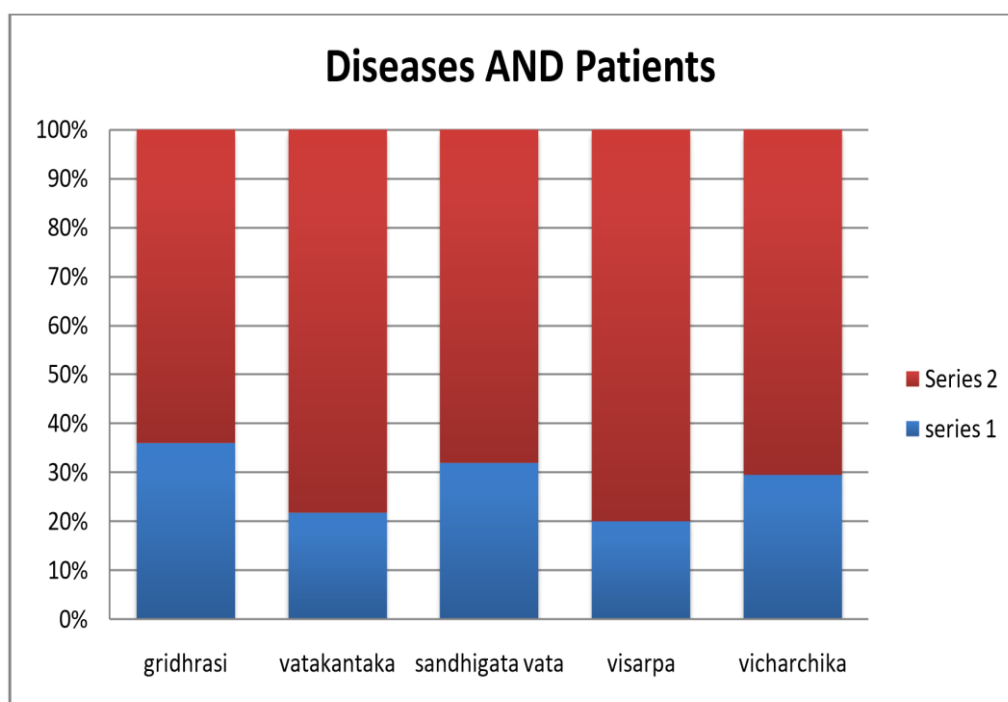
- All the available *Samhitas* of *Ayurveda* and other ancient and modern text of *Ayurveda*.
- Different *sthan* of *Sushruta Samhita* and other ancient *Samhita*.
- Modern anatomy of texts like B.D.Chaurasia general anatomy, Gray’s anatomy, Atlas of anatomy, clinically oriented anatomy, Netter’s anatomy etc. correlated with anatomy.

OBSERVATION AND RESULT

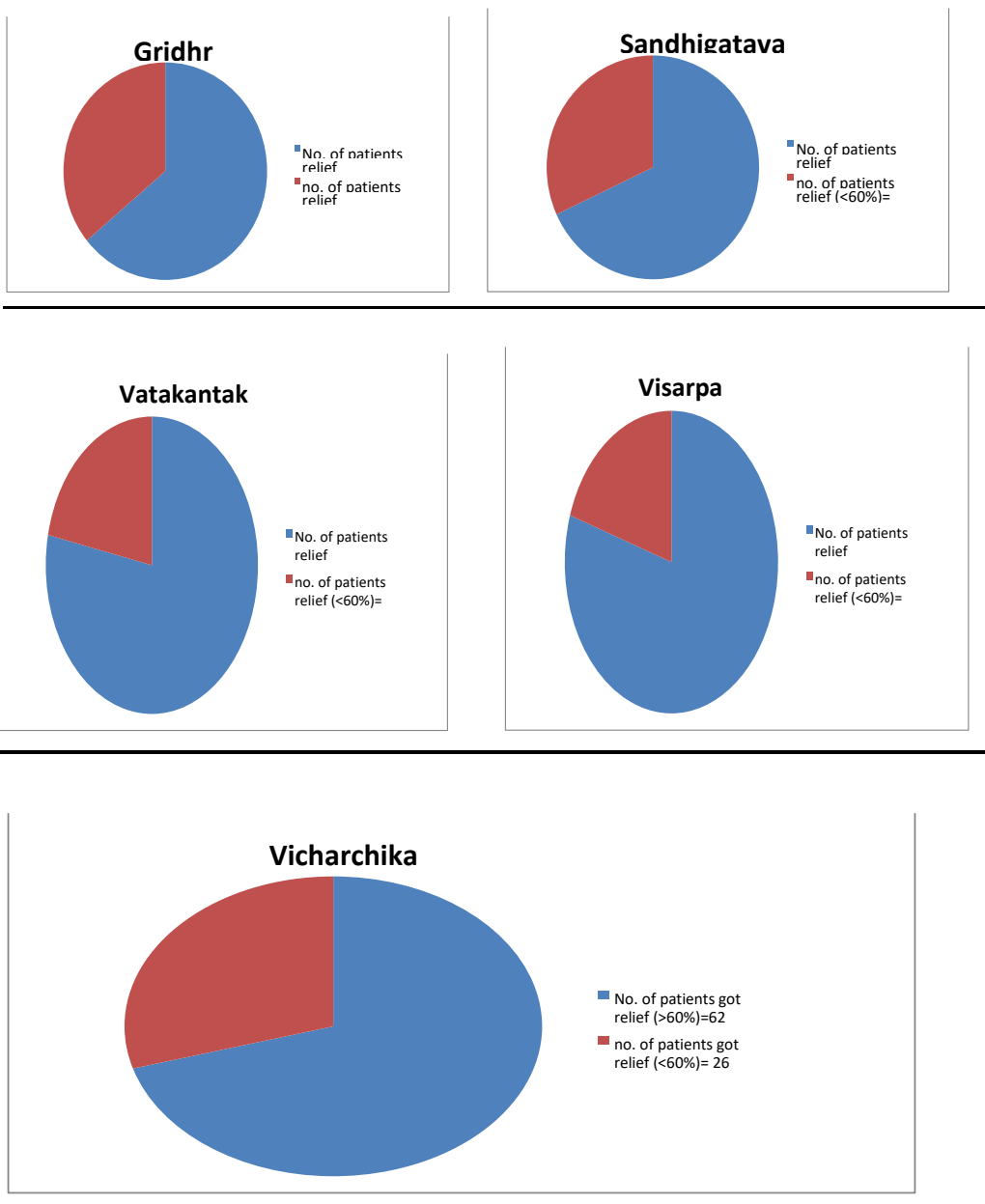
We have treated 104 patients in *Gridhrasi* and also done *Siravyadha* at *Janu Sandhi upariadhoh 4 angula* after that we got the result more than 60% relief from *Gridhrasi* in 64 patients and 36 patients got less than 60% relief in Parul institute of *Ayurveda*, Parul university, Vadodara. We have treated 92 patients in *Vatakantaka* and also done *Siravyadha* at *Kshipramarmaupari 2 angula* after that we got the result more than 60% relief from *Vatakantaka* in 72 patients and 20 patients got less than 60% relief in Parul institute of *Ayurveda*, Parul university, Vadodara. We have treated 94 patients in *Sandhigatavata* and also done *Siravyadha* at after that we got the result more than 60% relief from *Sandhigata* in 64 patients and 36 patients got less than 60% relief in Parul institute of *Ayurveda*, Parul university, Vadodara. We have treated 100 patients in *Visarpa* and also done *Siravyadha* at *Kshipramarmaupari 2 angula* after that we got the result more than 60% relief from *Visarpa* in 80 patients and 20 patients got less than 60% relief in Parul institute of *Ayurveda*, Parul university, Vadodara. We have treated 110 patients in *Vichrchika* and also done *Siravyadha* at *Kshipramarmaupari 2 angula* after that we got the result more than 60% relief from *Vicharchika* in 62 patients and 26 patients got less than 60% relief in Parul institute of *Ayurveda*, Parul university, Vadodara.

(TABLE NO.-7) RELATION BETWEEN DISEASES AND TOTAL NO. OF PATIENT

| Sr. No | Diseases name | Total no. of patients | No. of patients got relief (>60%) | No. of patients got relief in % (>60%) | No. of patients got relief (<60%) | No. of patients got relief in % (<60%) |
|--------|-----------------------|-----------------------|-----------------------------------|--|-----------------------------------|--|
| 1 | <i>Gridhrasi</i> | 104 | 64 | 66.56% | 36 | 37.44% |
| 2 | <i>Vatakantaka</i> | 92 | 72 | 66.24% | 20 | 18.4% |
| 3 | <i>Sandhigatavata</i> | 94 | 64 | 60.18% | 30 | 28.2% |
| 4 | <i>Visarpa</i> | 100 | 80 | 80% | 20 | 20% |
| 5 | <i>Vicharchika</i> | 110 | 62 | 68.20% | 26 | 28.6% |



(HISTOGRAM)



(PIE CHART)

Statistical analysis-

- 1) Mean value- no. of the patients got relief more than (>60) / total no. of patients
 - $64+72+64+80+62 / 5$
 - $342/5 = 68.4$
- 2) Mean value- no. of the patients got relief less than (<60) / total no. of patients
 - $36+20+30+20+26 / 5$
 - $132/5 = 26.4$

DISCUSSION

Sira are considered as the veins which carry deoxygenated blood toward the heart from all parts of body. Knowledge of *Sira* is used for venesection and treating the diseases. *Sira* having 700 in no. *Vatavahasira*, *Pittavahasira*, *Kaphavahasira*, *Raktavahasira* having 10, 10,10, 10 in no. respectively. *Shakha* having 400, *Kostha* having 136, *Murdhani* having 164 in no. *Avedhyasira* having 98 in no. *Shakha* having 16, *Koshtha* having 32, *Jatruurdhva* having 50 in no. *Vedhya sira* having 602 in no. Knowledge of *Ayurveda* is not developed in future because of lack of interpretation and generation gap and lack of needed tools and technique. A *Siravedhan* is called as *Ardhachikitsa* by *Shalyatantra* as compare to *Basti* is called as *Ardhachikitsa* by *Kayachikitsa*. To understand the concept of *Sira* in *Ayurveda*. According to *Charaka* and *Vagbhatta*, *Hridaya* is the *moolasthan* of *Sira*. As per *Acharya Charaka*, *Moola Sira* is called as *Mahamula*. According to *Acharya Sushruta*, *Nabhi* is *moola sthan* of *Sira*.



(SIRAVEDHAN PROCEDURE)

CONCLUSION

Gridhrasi is commonly seen in society as prominent problem. *Vyan vayu* is essential for manifestation of diseases. *Siravedha* is found efficacious in the management of *gridhrasi*²². *Sira* is one of the structural component of the body, where *sarana* is performed and through this structure. *Rasa dhatvadi* fluids flow through *Sira*. The "*Sarana*" explains the flow of the various fluids through *Sira*. *Srotas* are the structures through which *sravana* occurs. According to *Sushruta Samhita*, *Sira* is defined in *Sharirasthan Adhyay 7 Siravarnavibhakti Sharira*. According to *Vedas*, *Sira* defined as "*hira*" that carry impure blood. *Sira* having 4 in no. capillaries, veins, lymph vessels and arteries which are called as types of *Sira* respectively *Aruna*, *Neela*, *Gauri* and *Rohini*. Sites of *Siravedhan* is very important scientifically and used for clinical practice. *Avedhya sira* are called as terminal part of superficial veins, larger veins and arteries. *Vedhya sira* are suitable for *Siravedhan*. *Avedhya sira* are not suitable for *Siravedhan*.

CONFLICT OF INTEREST- No.

FINANCIAL SUPPORT- No.

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