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Case Study

RASAYANA CHIKITSA IN REDUCED EJECTION FRACTION AND *HRIDAROGA* (IHD)

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ABSTRACT
Ischemic heart disease (IHD) causes large number of mortalities, a significant public health concern, responsible for approx. 1.7 million deaths annually accounting about 15.2% of all death due to stressful fast, Sedentary life style, unhealthy food. **Objective**: to assess the efficacy of *Nitya anulomana, Hridabasti* and *Hridya rasayana prayoga* in spectrum of IHD. **Methodology**: Prospective randomised, open labelled modern controlled add on clinical experimental study. Diagnosed cases of IHD were treated with *Nitya Anulomana* by administering *Haritakyadi churna* 3gm before food with warm water daily night. *Hridbasti* with *Bilwadi tailam* 30 min for 7 days and again for 7 days after giving 7 days gap and *Chatushparni rasayana* was orally administered 500mg 2 capsules twice a day before food for 48 days, *Prabhakara vati* 1 tab before food bd for 48 days and *Bilwadi Kashaya* 15ml with 15ml of water BD as *Anupana* as add on therapy. **Result**: intervention showed improvement in subjective parameters like *Hritashoola, Arohana ayasa, Hritagouravata*, etc and objective like ejection fraction, lipid profile, blood pressure, ECG and 2d echo. **Conclusion**: IHD is result from atherosclerosis plaque accumulation and subsequent narrowing of the arterial lumen. reduced ejection fraction can be improved with Ayurvedic intervention, with *Nitya anulomana* by administering *Haritakyadi churna. Hridbasti* with *Bilwadi tailam chatushparni hridya rasayana, Prabhakara vati* and *Bilwadi Kashaya* as add on therapy.

INTRODUCTION
Ischemic heart disease (IHD) is a condition, where there is an inadequate supply of blood and oxygen to a portion of the myocardium, results into imbalance between myocardial oxygen supply and demand. Myocardial ischemia is atherosclerotic disease of an epicardial coronary arteries sufficient to cause a regional reduction in myocardial blood flow and inadequate perfusion of the myocardium supplied by the involved coronary artery[1]. Atherosclerosis is multifocal, multifactorial smouldering inflammatory disease that affects the intima of medium and large sized arteries, resulting in intimal thickening that may lead to luminal narrowing and inadequate blood supply[2].

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The pathogenic role of ischemic heart disease (IHD) in heart failure (HF) with reduced ejection fraction (EF <40%) is well established, but its pathogenic and prognostic significance in HF with midrange (EF 40%–50%) and preserved (EF ≥50%) has been much less explored[3]. Hence an attempt was made in this case series to know the efficacy of *Nitya Anulomana*, *Hridbasti* and *Hridya rasayana yoga* in IHD.

MATERIALS AND METHOD
Study design: Prospective open labelled uncontrolled incidental single case study.

Case 1
Male hypertensive patient of 52 years with complaints of *Hritashoola, Arohana ayasa, Hrita gouravata, Bhrama, Pindakovedana, Sthambha, Vibandha*. h/o TIA

ECG shows left anterior hemiblock, st elevation n v1 and v2.

ECHO shows EF approx. 30% dilated LA and LV. LV SYSTOLIC and diastolic dysfunction.

Raised lipid profile.

Case 2

Male diabetic and hypertensive patient 55 yr of age with complaints of *Hritashoola, Arohana ayasa, Padashotha.* H/O AWMI, smoker.

ECG shows poor r wave progression.

ECHO shows EF 45%. Clot at left ventricle apex, trival mitral regurgitation.

CAG: SVD

Raised lipid profile.

Case 3

Male diabetic and hypertensive patient 38 yr of age with complaints of *Arohana hritashoola, Arohana ayasa, Hrida gouravata,* blurred central vision.

ECG shows ST depression.

ECHO shows EF 30%, LV regional and global hypokinesia, mild MR. dilated left atrium and ventricle.

Raised lipid profile.

Intervention

- *Nitya anulomana* with *Haritakyadi churna*[4] 3gm HS for 48 days.
- *Hridbasti* with *Bilwadi taila*[5] for 30 mins.
  1st sitting – 7th to 14th day.
  2nd sitting – 21st day to 28th day.
- Cap. *Chatushparni rasayana*[6-10] 500mg 2 caps BD before food for 48 days.
- *Prabhakara vati*[11] 1 tab BD before food for 48 days.
- *Bilwadi Kashaya*[12] 15ml with 15ml water BD for 48 days as *Anupana*.

OBSERVATION AND RESULTS

Table 1: Before and After Treatment Results

Investigation	Subject 1		Subject 2		Subject 3	
	BT	**AT**	**BT**	**AT**	**BT**	**AT**
Blood pressure	140/90	130/90	130/90	120/80	130/90	130/90
Total cholesterol	145	137	159	137	116	123
Sr, tryglyceride	201	137	118.6	98.7	204	169
HDL	44	32.6	37.5	34.5	48	38.6
LDL	114	78.3	98.4	83.7	27.20	169
ECG	ST elevation	Normal sinus rhythm	Poor wave	Normal sinus rhythm	ST depression, bradycardia	bradycardia
Echo						
EF	30	34.2	45	58	30	35
LA Diameter	3.71 cm	2.8 cm	normal	normal	4.20cm	3.70
LVIDd	6.36 cm	4.69 cm	Clot at apex	No clot	6.80cm	6.30
LVIDs	5.49 cm	3.93 cm			5.40 cm	5.20

Patients presenting symptoms of chest pain shortness of breath, *Vibandha* got reduced. There is a significant relief in subjective and objective parameters after treatment.

In case 1 there is improvement in blood pressure, lipid profile and ejection fraction are raised by 4.2% along with normal left atrium and left ventricle diameter which was previously dilated. In case 2 ejection fraction is raised by 13% along with there is no clot at apex of the left ventricle which was previously present. In case 3 ejection fraction is raised by 5% with dilated left ventricle but dilatation reduced slightly with compare to before treatment report along with normal left atrium.

DISCUSSION

Hrudaya is one among *Trimarma, Mulasthana* of *Pranavaha* and *Rasavaha srotas. Sthana* of *Ojas*. As IHD presents with *Hrudshoola* (chest pain) as *Pradhana vedana* this can be correlated with *Vata kaphaja hridroga. Vyana vata* is mainly involved in initiating the pathogenesis of *Hridaroga* along with *Apana vata*. When the function of *Apana vata* is not properly regulated does the *Mala sanchaya* and disease begins here, *Dushita apana vata* does vitiation of *Samana vata* and *Ama utpatti* takes place. also, it does *Prana* and *Udana vikruti*. Along with that there will be *Dhamani pratichaya*[13] by *Sama meda dhatu* and *Vyana vata* does *Dhamani upalepa*. Thus, *Rasa* and *Raktavaha strotas* get obstructed due to accumulation of *Ama* and *Meda* and *Kapha* due to *Avarana*. this leads to

improper circulation and nutrition to cardiac tissues and forms *Hridaroga*. Due to Uncontrolled HTN and IHD leads to LV dysfunction which further progress in to reduced ejection fraction and end up with heart failure. based on presentation like *Hridshoola, Arohan ayasa, Hrida gouravata, Padashotha* it can be corelated with *Vata-kaphaja hridroga*. on basis of Ayurvedic treatment principles this case is treated with *Nitya anulomana, Hridbasti* and *Hridya rasayana*.

Mode of Action of *Nitya Anulomana*

As *Hridroga* is due to *Rasa dushti*, and *Vegadharana* is one of the causes of *Hridaroga*. *Hridashoola, Hrdadrava* are symptoms found in almost nine *Adharaniya vegas*. Due to involvement of *Apana vata* and *Vegadharana, Chikista* start with *Nitya anulomana* with *Haritakyadi curna.* As *Harityakdi churna* is *Hridarogahara*. *Haritaki* is *Rasayana*, *Anulomaka, Medogata kapha* and *Sneha shoshaka*, acts on *Hrudya* by clearing the *Strotovibandha* (obstruction in channels) and does *Samyaka vahana* of *Rasa dhatu*. also has antioxidant, anti-inflammatory, anti-hype lipidemic, cardioprotective properties. *Vacha* is *Shoolahara, Lekhana,* anti-oxidant, blood pressure lowering, antihyperlipidemic, cardioprotective and clot lysis action. *Rasna* is *Shothahara, Shoolahara, Shwasahara. Pippali* is *Rasayana*, *Deepana*, *Shwasahara*, antioxidant, hypocholestremic and platelet aggregating action. *Shunti* does *Rasagata samadosha pachana, Medashrita kapha* and *Kledaharana, Strotorodhahara*. Also shows lipid and blood pressure lowering, cardioprotective properties. *Shati* having *Kasaghna shwasaghna, Shulahara*. anti-inflammatory, hypoglycaemic, vasodilator, spasmolytic, antiasthmatic and hypotensive properties. *Pushkaramoola shwasahara, Parshwashoolahara* antioxidant anti ischemic action. Five drugs namely *Haritaki, Rasana, Pippali, Shunti*, and *Shati* by their *Rasayana* activity the act as cardioprotective. In total this formulation pays significant role in hypertension, obesity, dyslipidemia[14].

Hrid Basti

In this case study *Bilwadi taila* is used for *Hridbasti* which is indicated in *Hridaroga* by Acharya Vagbhata. *Bilwadi taila* contains *Brihat panchamula*, *Punarnava, Yava, Kola, Kulathya* act as *Vatahara*, *Shoolahara, Shothahar, Hridya* and *Rasayana*. In *Hridaroga* there will be *Dhamani pratichaya* and *Dhamani kathinya* due to *Sthira* and *Manda guna* of *Kapha* and *Meda dhatu upalepa* which leads to *Stroto rodha, Hrida basti* not only dilate blood vessels but also stimulates the receptors of intrinsic nervous system. It does proper *Rasa samhanana* and enhances *Hridaya sthana gata pitta karma* and regulates *Vyana vata karma*. It pacifies aggravated *Vata Dosha* in the chest region. It gives relief from the pain caused by *Vata* and *Swedana* is the primary treatment modality of vitiated *Vata dosha*. Also nourishes and strengthen the cardiac muscle thus improves ejection fraction by giving strength to left ventricles also it regulates the all-cardiac function.

Chatushparni Rasayana

It contains *Shalaparni, Prishniparni, Mudgaparni mashaparni* and *Rasa sindur. Shalaparni* acts *Balya rasayana, Kasahara, Shwasahara, Hridarogahara, Shophahara*. Antioxidant, cardioprotective, lipid lowering properties. *Prishniparni* is *Balya Kasahara, Shothahara* antioxidant action. *Mudgaparni* having *Shothahara*, *Hrudya*, *Shwasa, Kasahara, Rasayana* properties. *Mashaparni balya shothaghna* action. these four medicinal plants are *Balya, Vrishya, Rasayana* effect. On *Raktavaha samstana* acts as *Shothahara* (anti-inflammatory) and *Hridya* (cardio tonic). It cures *Shotharoga* (edema) and *Hridroga* (cardiac ailments). And by vasodilatation, anti-arrhythmic activity and maintenance of HDL and lowering LDL effects reduce the load on heart and improve cardiac muscle and vessel nutrition.

Prabhakara Vati

Is a *Rasayana*, Hridya contains *Swarna makshik, Loha Bhasma, Suddha shilajatu, Abhraka Bhasma,* and Bhavana with *Arjuna bark swarasa. Swarna makshika* is *Tridoshaghna, Rasayana, Balya, Yogavahi, Raktaprasadaka. Loha Bhasma* is *Rasayana, Balavardhaka, Shoolahara. Sddha shilajatu rasayana, Kaphahara, Meda Chedakara, Hritashulanashana, Yogavahi. Abhraka Bhasma* is *Balya*, *Deepana, Hrudya*, *Rasayana*. *Arjuna* bark contains co-enzyme Q10 protect LDL cholesterol from damage through oxidation so it is responsible for decreasing blood pressure and also improves heart function. all together act as *Rasayana hridarogahara, Balya, Shoolahara,* gives strength to myocardium and improves the functions of heart.

Wellness and illness cardiology practice is a futuristic scope in *Kayachikista*. In this modern era Drug therapy to prevent and manage stable IHD includes antiplatelate agents, lipid lowering agent, statins, ACE inhibitors. Statins lead to risk of statin associated myopathy and also co-administration of drug like erythromicine antifungal agents, immunosuppressive drugs and fabric acid derivatives interfere with metabolism of statins[15]. Also, statin leads to elevation in ALT and AST thus, there is need of alternative treatment to overcome this. IHD can be treated on the principles of *Kayachikista* by observing the clinical presentations.

CONCLUSION

LVEF can be improved by the ayurvedic intervention as per the evidence of the present case

studies. *Nitya anulomana*, *Bahirparimarjana, Bahya snehana swedana* as *Hridbasti* and *Hridya rasayana* is cost effective oral palliative care for IHD. further large sample multicentric studies are required.

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