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Role of Ayurvedic remedies in management of Dyslipidemia – A Case Report

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ABSTRACT:

A 60 years old male patient presented with complaints of lethargy, unwillingness towards performing daily activities and easy fatigability since last 4 years. During a routine medical checkup, he was diagnosed with hyperlipidemia and hyperuricemia. Dyslipidemia is an abnormal derangement of lipids in the blood and is found in many conditions including Diabetes Mellitus, Hyperthyroidism and Hypertension. In Ayurveda, it can be correlated with *Medovaha Stroto Dushti* (vitiation of channels carrying fat tissue), management of which follows the treatment principles of *Medo Roga* (disorders of fat tissue). The patient was treated on *Kapha-meda Nashak Chikitsa* using combination of *Shodhana Chikitsa* (purification therapy) followed by *Shamana Chikitsa* (palliative therapy) using *Arogyavardhini Vati* and *Mustadi kwatha* and diet and life style modifications for 7 months. After the course of treatment, lipid profile and kidney profile was done. There was significant improvement in the biochemical parameters, indicating that dyslipidemia can be effectively treated with Ayurvedic interventions.

KEY WORDS: Ayurveda**,** Dyslipidemia, *Medovaha Sroto Dushti, Shodhana.*

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INTRODUCTION:

Dyslipidemia is a metabolic abnormality that leads to a persistent increase in amount of plasmatic concentration of lipids and lipoproteins which leads to risk factor for atherosclerosis, coronary artery diseases and cerebro-vascular diseases caused due to increase in adverse lifestyle practices including intake of unhealthy diet and increasing sedentary lifestyle.[1],[2] Primary lipid problems can be classified according to predominant problems which may include hypercholesterolemia, hyper triglyceridemia or mixed hyperlipidemia.[3] The most common dyslipidemia in India are borderline high LDL cholesterol, low HDL cholesterol and high triglycerides. In urban and rural India, 13.9% accounts for

hypercholesterolemia, 29.5% for hypertriglyceridemia, 72.30 % for low HDL-C and 11.80% for high LDL-C levels.[4] Causes includes primarily due to single or multiple gene mutations and secondary i.e. hypothyroidism, poorly controlled DM, obesity, chronic kidney disease, hepatic dysfunction and cholestasis, alcohol in susceptible individuals, anorexia nervosa and improper use of drugs such as OCPs, retinoid, thiazide, diuretics, corticosteroids, beta blockers and anti-retroviral.[5]

In Ayurvedic parlance, dyslipidemia can be correlated with *Medo-Dushti* (vitiation of fat tissue) in *Rasa* (primary product of digested food) or *Rakta Dhatu* (blood tissue). Digestive fire is responsible for all the metabolic activities in human body. Excessive use of heavy and unctuous food items, over eating, anxiety, stress, lack of physical exercise, habitual excessive alcohol intake and sedentary life style causes vitiation of digestive factor leading to *Rasa Vaha* (vitiation of channels carrying nutrient fluids) and *Medovaha Stroto Dushti* (vitiation of channels carrying fat tissue).[6] Due to feebleness of metabolic factors of the body, the food which is not completely digested yields immature primary product of digested food in stomach and due to the retention, it undergoes fermentation. This state of primary product of digested food is said to be *Ama* (partially metabolized product of digested food).[7] This can be produced at the level of *Jatharagni* (metabolic factors located in digestive tract) or *Dhatwagni* (metabolic factors located in major structural component of body). Improper function of *Agni* (metabolic factors of body) is stated to be the cause of *Ama* (partially metabolized product of digested food) production.[8] This partially metabolized product of digested food produced at this level inhibits the assimilation of nourishing factor leading to abnormal increase of circulating *Snehansha* (unctuousness) resulting into formation of *Abadha Meda Dhatu* (fat tissue) causing increased fatigue on exertion, dyspnea and accumulation of fat at various sites like buttocks, breast, abdomen.[9],[10] Basic line of treatment includes avoidance of etiological factors), *Apatarpana Chikitsa* (depleting procedure), *Shodhana* (purification therapy) and *Shamana Chikitsa* (palliative therapy).[11],[12]

Need of the Study:

Dyslipidemia is one of the condition of metabolic Syndrome.[13] Life style modification and dietary changes is the effective and primary strategies for the prevention a of disease[14]. Such line of treatment is well mentioned in Ayurveda texts. Dyslipidemia is leads to risk factor for atherosclerosis, coronary artery diseases and cerebro-vascular diseases. Ayurveda helps to prevent these types of condition by unique *Panchkarma* procedures like *Virechana Karma*(bio-purification of Body).Also there is common side effects of Cholesterol lowering drugs i.e. nausea, abdominal pain, muscular pain and weakness, headache, dizziness, fatigue etc[15] Management of dyslipidemia is aim to prevention of cardio vascular diseases.Hence, it is subject to explore the herbal cholesterol lowering agents to prevent such type of conditions and its side effects.

CASE DESCRIPTION:

A 60yr old male patient (central ID no-158821) presented on may-2019 in outpatient department of Ch. Brahm Prakash Ayurved Charak Sansthan, Khera Dabar with complaints of lethargy, unwillingness towards performing daily activities and easy

fatigability since 4 years. During a routine medical checkup, patient was diagnosed with elevated levels of Serum Cholesterol, Serum Triglycerides, serum LDL-C direct and Serum Uric acid. Lipid profile suggested very high total cholesterol, triglycerides, LDL-C and non HDL-C as per the NLA-2014 guidelines. Also there was hyperuricemia. The BMI of the patient was 28.1 kg/m^2. Patient felt lethargic and easy fatigability even in doing his daily activities such as going to buy milk, gardening, helping his wife at domestic chores.There was no previous history of any chronic illness such as hypertension, diabetes, thyroid disorders and no relevant supporting family history. At the time of consultation, patient was not taking any medication as well. Patient was stable with B.P. 120/90 mmHg, Pulse rate 78bpm and Respiratory rate 16/min.

TREATMENT SCHEDULE:

Virechana Karma (Bio-purification of body-therapy) was administrated and *Madhyam Shudhi* (moderate cleansing) was achieved with total 19 *Vegas* corresponding to which the patient followed the *Sansarjan Krama* (post therapy dietic regimen for revival) for 5 days. After the completion of therapy patient was discharged and advised oral medications for the 60 days as depicted in Table no-1 and 2.

After 60days of therapy only certain diet and lifestyle modifications advised to patients.

Diet and lifestyle modification:

Patient advised to use of old and red variety of rice, barley, horse gram. Patient should be use of vegetables like bottle guard, bitter guard, drums stick, ginger, and garlic and butter milk in meals. Avoid fried and sweet food items, potato, curd, aerated drinks and raw milk possibly. Have to daily 30 minutes brisk walking in morning and evening.

Follow up and outcomes:

Patient was treated from May 2019 to January 2020. Active intervention was till 30th October 2019 and patient follow up was continued till 31st January 2020. Outcome on subjective parameters such as lethargy showed slight reduction by the end of *Shodhana* (bio cleansing) therapy. Biochemical parameters like Serum Cholesterol Total reduced from 272mg/dl to 213mg/dl, Sr. Triglyceride from 397mg/dl to 176mg/dl, HDL-C increased from 40mg/dl to 44mg/dl, LDL-C Direct reduced from 164mg/dl to 139mg/dl, VLDL from 67.80mg/dl to 35 mg/dl and Non HDL-C from 231mg/dl to 174mg/dl by the end of 81st day. By the end of 171th day, there was remarkable improvement in generalized weakness and lethargy as told by the patient. The oral medications were withdrawn and the patient was advised to follow only diet modifications along regular physical exercise and follow up was maintained for period of 90 days. After 90 days of follow up, it was observed that the weight of the patient reduced to 81.400kg, Sr. Cholesterol increased from 205mg/dl to 216mg/dl. There was improvement in Sr. Triglyceride from 150mg/dl to 136mg/dl, LDL-C from 149mg/dl to 144mg/dl and HDL-C from 44mg/dl to 45mg/dl. The level of Sr. Uric acid was reduced from 8.10 mg/dl to 5.5mg/dl after treatment. [Table No. 3].

Table-1: Details of *Virechana Karma* (therapeutic purgation):

Procedure	Drugs and Dose	Duration
Deepan and *Pachan* (enhancing metabolic fire and enhancing digestion)	For the *Deepana Pachana Chitrakadi Vati* 2 tablets twice a day before meals with warm water a*nd Avipattikara Churna* [36] 5gm at bed time with warm water was advised	5 days
Snehapana (Internal therapeutic oleation internally)	*Mahatriphala Ghrita* [37]] started with 30 ml of intake gradually it was increased as per the Agni (digestive fire) and *Bala* (capacity) of patient for the 5th day till *Samyak Snehana Lakshana (*oiliness in skin and ghee come with stool*)* achieved. Empty stomach with warm water.	5 days
Sarvanga Abhyanga and Vashpa Sweda (therapeutic oil massage and sudation therapy)	*Sarvanga Abhyanga* (whole body massage) *and Vashpa Sweda* (therapeutic oil massage and sudation therapy) with *Mahanarayan taila* [38] *done* for next three days in the morning.	3 days
Virechana karma (therapeutic purgation)	*For Virechana Karma* (therapeutic purgation) Virechna drugs *Draksha Kwath* 200ml with *Trivritt Avleha*[39] 50gm after massage and sudation therapy over whole body early morning was given	
Sansarjan Karma (post therapy dietic regimen for revival)	*Sansarjan Karma* (post therapy dietic regimen for revival) for the 5 days advised according to *Shuddhhi*.	5 days

For the preparation of Drakasha Kwatha, the patient was asked to break 200gms of Draksha in 1 litter water and steep to it whole night then next morning boil it fup to remaim 1/4th and filter it.

Table-2: Treatment protocol:

Drug sed	Dose	Root	Duration
Arogyardhini Vati	2 Tablets (each 250mg) twice a day after meals with warm water.	Orally	60 days
Mustadi Kwatha	40ml twice a day empty stomach morning and evening	orally	60 days

Table-3: Comparison of biochemical parameters before and after treatment:

	Comparison of biochemical parameters before and after treatment		
Biochemical Parameters	**Before Treatment**	**After cleansing therapy (Virechana)**	**After Treatment**
Serum Cholesterol Total	272 mg/dl	213 mg/dl	216 mg/dl
Serum Triglycerides	397 mg/dl	176 mg/dl	136 mg/dl

Serum HDL Cholesterol	40.20 mg/dl	44.0 mg/dl	45 mg/dl
Serum LDL Cholesterol direct	164.0 mg/dl	139.0 mg/dl	144 mg/dl
Serum VLDL Cholesterol	67.80 mg/dl	35.0 mg/dl	35 mg/dl
Non HDL Cholesterol	231.80 mg/dl	174 mg/dl	174 mg/dl
Serum Uric Acid	8.10 mg/dl	-	5.5 mg/dl

Lab Investigation report:

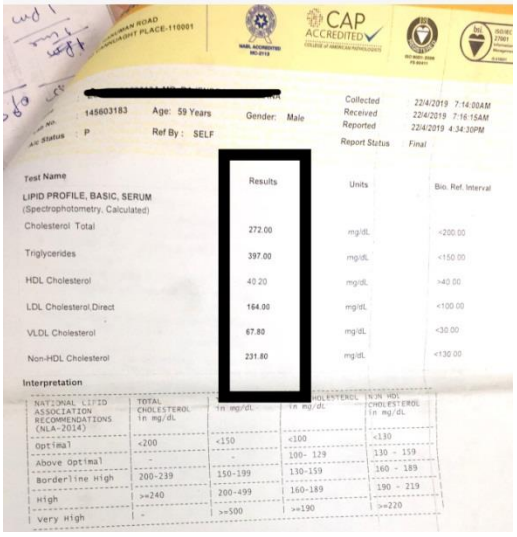

Fig-1: Lipid profile Before Treatment

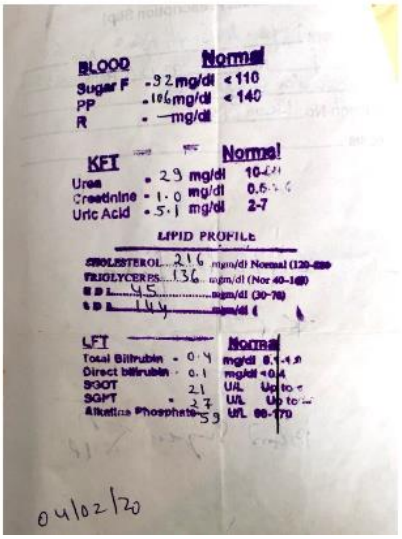

Fig-2: Lipid profile After Treatment

DISCUSSION:

Dyslipidemia is caused due to *Agnimandya* (diminution of digestive fire) leading to *Rasa Vaha* and *Medo Vaha Stroto Dushti* (vitiation of channels carrying nutrient fluids and fat tissue). *Medovaha Stroto Dushti* (vitiation of channels carrying fat tissue) is treated on the lines of principles of *Sthaulya*[16] (obesity) and hence *Deepana* (enhancing metabolic fire), *Pachan* (enhancing digestion), *Kaphaghna* (Kapha pacifying) and *Medo Nashak* (pacifying fat tissue) treatment were used. Since it is a *Santarpan Janya* (caused due to nourishing procedure) and *Bahu Dosha Avastha* (including multiple regulatory functional factors of the body), *Apatarpana Chikitsa* (depleting factors) including *Shodhana Chikitsa* (major purification therapy) followed by *Shamana Chikitsa* (palliative therapy) and special dietary and exercise regimens were incorporated. As it has said that, the morbid *Doshas (toxins)* subdued by direct administration of *Aushadhi (* drugs*)* may sometimes be again provoked, but in the case of those which are subdued by *Samshodhana*(cleansing procedures), there is no possibility of such recurrence.[17] That's why Virechana (purgation) is given for the Shodhana purpose prior to administration of drug.

Virechana (therapeutic purgation) has multiple roles starting from *Deepan-Pachan* (enhancing metabolic fire and digestion) to *Samsarjan Karma* [18] (post therapy dietic regimen for revival) in correction of the *Agni* (metabolic factors) at all level. *Chitrakadi Vati*

[19] by virtue of its *Aam Pachaka* (digestion/metabolism of undigested food material) and *Agni Deepana* (enhancing metabolic fire) property[20-21] *Sweda* (sweat) is the by-product of *Medo dhatu* (fat tissue).[22] *Swedana (sudation)*, by virtue of its *Ushna guna* (hotness) and *Tikshna guna* (sharpness) increases the metabolic rate in the body. *Ushna guna* (hotness) dilates the capillaries and increases the sympathetic activities which increase the circulation. Increased circulation in return enhances the elimination of waste products and absorption of *Sneha* (oleation assisting material) through the skin. Thus *Snehan* (therapeutic oleation) and *Swedana* (sudation) together mobilize the waste products in the form of fat tissue.[23] The action of *Virechan karma* (therapeutic purgation) can be explained on the basis of two modes: *Virechana Karma* (therapeutic purgation) being through which large amount of bile is excreted which indirectly helps in the excretion of cholesterol. Also Virechana (therapeutic purgation) procedure useful to clear and open the channels as well it helps to increase bio availability of drugs by removing the free radicals (oxidants) present in the microcirculatory channels[24][25]

Arogyavardhini Vati [26] can be beneficial in dyslipidemia because of is properties. *Katuki (Picrorhiza kurroa),* the major ingredient of *Arogyavardhini Vati* by its *Ruksha* (dry) *and Laghu Guna* (light), *Tikta Rasa* (bitter taste) and *Katu Vipka* (assimilate. ve transformation into pungent) pacifies the *Kapha Dosha* and shows choleretic effect.[27],[28] *Guggulu* (*Commiphora mukul* (Hook. Ex Stocks) Engl.) shows *Medohara* (pacifying fat tissue) action by its *Tikta* (bitter taste), *Katu* (pungent taste) and *Tikshna* (sharp) properties.[29] Also *Arogyavardhini Vati* acts as an anti-inflammatory agent. Hence, this could be the reason for raised HDL levels. Humic acid, a constituent of *Shilajitu* (Mineral pitch) show anti-atherogenic effect.[30] *Amlaki* (*Phyllanthus emblica* L.) has been shown to decrease triglyceride synthesis while increasing the synthesis of HDL. It promotes the absorption of cholesterol into cells and also decreases HMG CoA reductase activity and thus the synthesis of cholesterol. Also research work done related effect of *Arogyavardhini Vati* to manage metabolic syndrome and gives positive result in lowering the lipid profile[31]

Mustadi Kwatha[32] contain *Musta (Cyperus rotundus), Patola (Trichosanthes dioica), Khadira (Acacia catechu* (Roxb.) Willd.) *Nimba* (*Azadirachta indica* A. Juss.), *Haridra* (*Curcuma longa* Roxb.) and *Kutaja* (*Holarrhena antidysenterica* (Roth.) A.DC.) by virtue of their *Laghu* (light), *Ruksha* (dry) properties and predominantly *Katu (pungent taste)* and *Tikta rasa* (bitter taste) pacify *Kapha dosha* and promotes *Deepana* (enhancing metabolic activity) activity.[33] *Aragwadh* (*Cassia fistula* L.) shows hepato-protective activity and it also facilitates elimination of *Dosha* (regulatory functional factors of the body) by laxative action. *Triphala* (*Phyllanthus emblica* L, *Terminalia chebula* Retz. and *Terminalia bellerica* Roxb.) inhibits the elevation of LDL, VLDL and Blood glucose levels and increases HDL level. It also decreases lipid peroxidation which is a major factor in development of atherosclerosis.[34] Besides pharmacological interventions, diet and lifestyle modification plays a key role in management of dyslipidemia and associated risk factors. Acharya *Sushruta* says *Sthaulya* (obesity) depends on the quality and quantity of *Ahara* (food) one consumes.[35] Thus, Ayurvedic management through whole

system approach starting from *Shodhana* (major purifying procedure) followed by *Shamana* (palliative therapy) and *Pathya-Apathya sevana* (compatible to health) showed remarkable improvement in deranged lipid profile. Follow up of 90 days showed sustenance of all positive outcomes.

CONCLUSION:

Ayurvedic management of dyslipidemia through classical *Panchakarma* (bio-purification of body) procedure and oral administration of Ayurvedic remedies showed its efficacy to reduce biochemical parameters of Lipid as well as Kidney profile. Hence , It can be concluded that herbal remedies with diet and life style modification can be helpful to manage such type of diseases and prevent the side effects safely.

PATIENT PERSPECTIVE:

The patient was satisfied with the management. He felt much happier and active than before. He started keeping a check on his eating habits and continues his daily walk regularly.

PATIENT CONSENT:

Patient gave informed consent for reporting of the case study in the journal.

CLINICAL SIGNIFICANCE:

The high cost and side effects of antilipidemic drugs can be curbed effectively through Ayurvedic intervention. Since it is a customized approach considering the overall aspects of the patient, it not only cured the deranged conditions but also promoted wellness through diet and lifestyle modifications.

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