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Diet and yoga for prevention of dyslipidemia (*Medoroga*) – A review

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Abstract

Dyslipidemia is one of the lifestyle disorders, occurs due to faulty food habits, less physical activities, irregular sleep, stress etc. It is defined as a metabolic disorder in which the levels of Lipoproteins, Cholesterol, and Triglycerides are raised in plasma, as well as there is a deposition of lipids (esterified cholesterol) in the walls of arteries. It is one of the most important risk factors for Coronary Heart Disease. It may be considered as *Medoroga* under *Santarpanjanya vyadhis* in Ayurveda. Lipids may be correlated, with *medas* and hence *medohara* measures can be employed in the prevention of dyslipidemia (*medoroga*). High cost and side effects of modern medicines for dyslipidemia have led many peoples to search for alternate treatments. In Ayurvedic and Yogic classics, there are various principles to maintain the healthy life and these principles are not liable to changes at any time. Wholesome diet, regular exercise, proper sleep and certain Yogic Practices like *asanas*, *shatkarma* etc. play important role in prevention as well as stoppage of further progress of Dyslipidemia.

Keywords: Dyslipidemia, Diet, Yoga, *Medodushti*, *Santarpanjanya vyadhi*

Introduction

In modern era every person is trying to achieve higher goals in life, hence does not have time to think and act for a healthy life. There is evolution of many newer diseases due to modernization, sedentary lifestyles, genetic and environmental factors which have altered over the years. Nowadays the ancient science of Ayurveda has been accepted by the world for its relevance, efficacy and adaptability. Whatever described in Ayurveda is found everywhere and whatever not mentioned here is not found anywhere else ^[1]. So, No disease is newer or unknown to the Ayurveda. With the proper exploration of literary sources, understanding and applying the basic concepts of Ayurveda, one can make the possible equivalence of Ayurvedic concepts with the existing modern concepts. In Ayurvedic literature great importance has been given to diet and lifestyle (i.e. *Dincharya*, *Ritucharya*, *Ratricharya* etc.) for normal functioning of *Srotas*. In Ayurveda, the concept of *Srotas* (Channels) has been propagated in detail. Body is composed of numerous *srotas*, having significant role in the maintenance of equilibrium of the body. According to *Acharya Charaka* the specific varieties of channels of circulation in the human body are same in number as the structural entities in it, so the *Srotas* are innumerable. Despite being innumerable, *Acharya Charaka* described 13 main *srotas*, *Medovaha Srotas* is one of among them. According to *Acharya Charaka*, the *mula* of *medovaha srotas* are *Vrikka* and *Vapavahan*. This *srotas* gets affected by faulty lifestyle i.e. lack of physical exercise, sleeping during day time, excessive intake of fatty food and alcoholic drinks etc. These causes lead to *dusti* of *medadhatu* and ultimately *Medoroga* (*Santarpanjanya Vyadhi*) ^[2]. In modern perspective *medoroga* can be correlated with the dyslipidemia. By exploring the principles mentioned in Ayurvedic literature and Yoga, it has been clear that adoption of non-pharmacological approaches can combat *medoroga*.

Dyslipidemia

Definition: Dyslipidemia is an abnormal amount of lipids (e.g. cholesterol and/ or fats) in the blood. It causes cholesterol deposits in arteries and provokes atherosclerosis, which reduces the size of the artery and, in the long term decreases the blood flow through these affected arteries. It is one of the lifestyle disorders due to today's faulty lifestyle. It may be manifested

by elevation of the total cholesterol.

Prevalence: According to ICMR-INDIAB study, it was found that Hypercholesterolemia was 13.9%, hypertriglyceridemia was 29.5%, low HDL-C was 72.3%, and high LDL-C level was 11.8%³. It was predicted that by 2015 in India 62 million patients may suffer with Coronary Artery Disease (CAD). Out of them 23 million may be patients younger than 40 years of age. Abnormal cholesterol levels are estimated to cause 18% of the global CVDs and 56% of the global Ischemic Heart Disease. For every 1% reduction in lipid level, the risk of heart diseases reduced by 25%.

Pathophysiology: [4] The pathophysiological components of Dyslipidemia are genetic, environmental, or both. Genetic errors of cholesterol synthesis regulation, hepatic cholesterol metabolism, cell membrane receptor function and others are recognized, yet poorly understood. Lifestyle factors including dietary habits and daily activities levels are also well recognized, and their modification often constitutes initial conservative interventions in the treatment of dyslipidemia.

Risk Factors: [5] Dyslipidemia increases by varieties of factors, viz. family history, aging, weight gain, physical inactivity, menopause, insulin-resistance, hypothyroidism, and diet rich in saturated fats and cholesterol.

Diagnosis: Dyslipidemia was diagnosed by using **National Cholesterol Education Programme, Adult Treatment Panel III (NCEP ATP III) guidelines:**

| Serum Lipoproteins | Fasting values (mg/dl) | Interpretation |
|--------------------------|------------------------|-----------------|
| Total Cholesterol | <200 | Desirable |
| | 200-239 | Borderline High |
| | >or = 240 | High |
| LDL Cholesterol | <100 | Optimal |
| | 100-129 | Near optimal |
| | 130-159 | Borderline high |
| HDL Cholesterol | 160-189 | High |
| | >or = 190 | Very high |
| | <40 | Low |
| Triglycerides | >or =60 | High |
| | <150 | Desirable |
| | 150-199 | Borderline high |
| | 200-499 | High |
| | >or =500 | Very High |

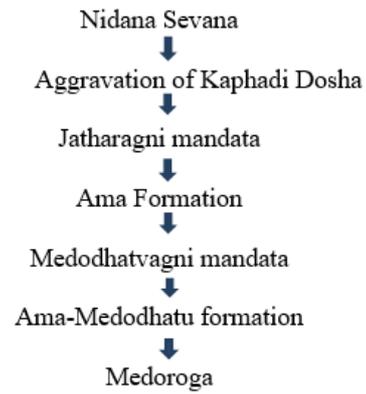
Sign and Symptoms: [6, 7] Dyslipidemia itself causes no symptoms but can lead to symptomatic vascular diseases, including coronary artery disease (CAD), stroke and peripheral arterial disease.

Medoroga

Concept of Lipids in Ayurveda

In our body there are many tissues which are rich in lipids. All these structures have *Sneha* guna. They are *Medodhatu*, *vasa* and *Majja dhatu*. There are two types of *medodhatu*, one is *poshaka* (nutrient) and second is *poshya* (get nourished) [8]. Among these, *Poshaka Medodhatu* is *gati yukta* (mobile in nature) which is circulated in the whole body along with *RasaRaktadhatu* to give nutrition to *Poshya Medodhatu*. Through different imaging techniques it can be visualized that lipids along with cholesterol are being circulated with the blood. Second *Poshya Medodhatu* is *gativarjita* (immobile in nature), which is stored in *Medodharakala*. The site of *Medodharakala* is *Udara*, *Sphika*, *Stana*, and *Galapradesha*.

Samprapti of Medoroga: [9]



Samprapti Ghataka: [9]

| | |
|------------------------|---|
| <i>Dosha</i> | <i>Kaphapradhana tridosha</i> |
| <i>Dushya</i> | <i>Rasa, Rakta, and Medadhatu</i> |
| <i>Agni</i> | <i>Jatharagni, Rasa, Rakta, Medadhatvagni</i> |
| <i>Srotas</i> | <i>Rasa, Rakta and Medovaha</i> |
| <i>Srotodushiti</i> | <i>Sanga</i> |
| <i>Roga Marga</i> | <i>Bahya or Abhayantara (based on vyadhi)</i> |
| <i>Udbhava Sthana</i> | <i>Amashaya</i> |
| <i>Sanchara Sthana</i> | <i>Sarvashareera</i> |
| <i>Vyakta sthana</i> | <i>Sarvashareear, Basti(prameha), Hridaya(Hridroga)</i> |

Similarities between Dyslipidemia and Medoroga Etiological Factors

| According to Modern | According to Ayurveda |
|---------------------------|---|
| Intake of high fatty diet | <i>Kapha & Medovardhakaanna atisevana</i> |
| Lack of exercise | <i>Avyayama</i> |
| Sedentary life style | <i>Divaswapana</i> |
| Genetic predisposition | <i>Bijaswabhava</i> |

Clinical Features

| According to Modern | According to Ayurveda |
|---|--|
| Excessive deposition of fat in abdomen, waist, buttock etc. | <i>Sphika, Udara, Parshva, Stanapradesha Atimedavridhi</i> |
| Excessive appetite | <i>Atikshudha</i> |
| Exertional dyspnea | <i>Kshudrashvasa</i> |
| Excessive perspiration | <i>Atisveda</i> |
| General weakness | <i>Daurbalya</i> |

Complications

| According to Modern | According to Ayurveda |
|---------------------------|-----------------------|
| Decreased life expectancy | <i>Ayusho-hrasha</i> |
| Mechanical disabilities | <i>Javoparodha</i> |
| Loss of immunity | <i>Alpa Bala</i> |

Protocol for Prevention of Dyslipidemia

Prevention of Dyslipidemia includes same principles as that of *Sihaulya*.

- *Kapha- medahara* and *Vatanulomaka Ahara and Vihara* [10]
- Regular yoga practices
- Regular Exercise
- Proper sleep

Pathya Ahara - Vihara (Do's)

- Intake of regular and balanced diet.
- Use of lukewarm water (*ushnodaka*) for drinking

- Use of Barley (*Yava*), Sorghum (*Jwara*), Indian Gooseberry (*Amla*), Honey (*Madhu*), Butter milk (*Takra*)^[11]
- Use of Green Gram (*Mudga*), Horse Gram (*Kulattha*), Bengal Gram (*Chana*), Arhar^[12]
- Plenty of green leafy vegetables and fruits
- Brisk walking
- Regular exercise^[13, 14]
- Regular sleep
- Practices of Yoga

Apathya Ahara- Vihara (Don'ts)

- Frequent and excessive intake of oily / heavy food items
- Sleeping in day time (Divaswapana)^[15]
- Sleeping immediately after taking meals
- Sedentary lifestyle
- Junk food like burger, pizza, cold drinks and fried food items

Yogic Practices for reversal of pathology of Dyslipidemia

- Joint movements
- *Hashtpadasana, Ardha-chakrasana, Trikonasana*
- *Vajrasana, Ardhamatsyendrasana*
- *Pavanmuktasana, Naukasana, Dhanurasana*
- *Anulom-vilomkriya, Bhastrika and Bhramari Pranayama*
- *Dhyana* (Meditation)
- *Surya Namaskara*
- *Shatkarma* like *Kapalbhati and Jaladhauti*

Conclusion

Ayurveda and Yoga are invaluable gifts of ancient Indian tradition with holistic approach to health and well-being. The causes for primary dyslipidemia may be considered in Ayurveda under the concept of *beeja dushti*, and secondary dyslipidemia under the *kapha-vatapradoshaja vikara* i.e. *medoroga*. The equilibrium between *doshas, dhatus, malas* and *agni* helps in preventing the occurrence of pathology of the disease. *Nidanaparivarjana*, specific diet, regular yogic practices and exercise help in prevention and further progress of dyslipidemia.

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