

**ROLE OF LIFESTYLE MODIFICATION IN PREVENTION OF CARDIOVASCULAR DISEASES****Dr. Neha Joshi<sup>1</sup>, Dr. Punita Pandey<sup>2</sup>, Dr. D.K. Goyal<sup>3</sup> and Dr. Arun Kumar Sharma<sup>4</sup>**<sup>1</sup>P.G. Scholar, P.G. Department of Kayachikitsa, Uttarakhand Ayurved University, Gurukul Campus, Haridwar, Uttarakhand, India.<sup>2</sup>Professor, P.G. Department of Kayachikitsa, Uttarakhand Ayurved University, Gurukul Campus, Haridwar, Uttarakhand, India.<sup>3</sup>HOD & Professor, P.G. Department of Kayachikitsa, Uttarakhand Ayurved University, Gurukul Campus, Haridwar, Uttarakhand, India.<sup>4</sup>Associate Professor, P.G. Department of Kayachikitsa, Uttarakhand Ayurved University, Gurukul Campus, Haridwar, Uttarakhand, India.**\*Corresponding Author: Dr. Neha Joshi**

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**ABSTRACT**

Cardiovascular disease is the leading cause of death worldwide. Nowadays lifestyle is changing due to social, economic and cultural changes. Global urbanization, sedentary life style, stress in day-to-day life makes people unaware to take care of their health. These all factors are causing various health hazards by developing many lifestyles related diseases. In such condition, it is very important to be aware about harms of these factors and how to get rid of them. In this era of industrialization, it is very important to choose a healthy way of living and encouraging people to adopt ayurveda based life style. People should be aware about benefits of life style modifications e.g.; cessation of tobacco smoking and other harmful addictions etc.

**KEYWORDS:** Cardiovascular diseases, Risk factors, Ayurveda.**INTRODUCTION**

Life style disorder is a group of diseases that occurs due to adoption of unhealthy lifestyle. It comprises many diseases, these are; DM, HTN, CVDs, Obesity, hyperlipidaemia etc. these diseases are interlinked with each other i.e., each disease increases risk of other.

Cardiovascular disease (CVD) is now the most common cause of death worldwide. Before 1900, infectious diseases and malnutrition were the most common causes, and CVD was responsible for <10% of all deaths. In 2015, CVD accounted for ~17.9 million deaths worldwide (32%), including nearly 34% of deaths in high-income countries and about 32% in low- and middle-income countries.<sup>[1]</sup>

An estimated 36 million deaths, or 63% of the 57 million deaths that occurred globally in 2008, were due to noncommunicable diseases, comprising mainly cardiovascular diseases (48% of noncommunicable diseases).<sup>[2]</sup>

**AIMS AND OBJECTIVES**

1. To know about risk factors of CVDs.
2. Life style modification in prevention of CVDs.

3. To understand role of ayurveda in prevention of CVDs.

**RISK FACTORS FOR CVD**

To prevent any disease, first of all we must know about the causes of that disease. Various risk factors for CVDs which can be modify are;

**➤ Behavioural Risk Factors**

**1. Unhealthy dietary habits-** High consumption of saturated fats, trans fats, salt, refined carbohydrates and less intake of dietary fibres (fruits and vegetables) lead to more chances of CVDs.

a. Saturated fats, trans fats are risk factors for hyperlipidaemia and CVDs.

b. High sodium consumption (>2g/day) and insufficient potassium intake (<3.5 g/day) contributes to high blood pressure and increases risk of heart diseases.<sup>[3]</sup>

c. Refined carbs may increase blood triglycerides, blood sugar levels and causes insulin resistance. All of these are major risk factors for heart disease and type 2 diabetes mellitus.<sup>[4]</sup>

**2. Physical inactivity-** Sedentary life style like; watching TV, driving car, sitting, prolong sleeping, lack

of physical exercise, yoga- meditation leads to risk for developing dyslipidaemia, obesity, type 2 DM, hypertension, metabolic syndrome and CVDs. And also increases the risk of CVDs mortality.<sup>[5]</sup>

**3. Smoking-** Smoking includes; tobacco smoking, second-hand smoke, smoke inhalation from cooking (Passive smoking). It causes;

- a. Atherogenesis due to carbon monoxide.
- b. Smoking damages the walls of the arteries, and cholesterol gets deposited in the damaged arterial walls. This mechanism causes the degradation of high-density lipoproteins (HDL).
- c. Nicotine in tobacco smoking causes adrenergic stimulation, raising both blood pressure and myocardial oxygen demand.

The risk of developing CVD is directly proportional to the number of cigarettes smoked per day. There is evidence that the influence of smoking is not only independent of, but also synergistic with other risk factors such as hypertension and elevated serum cholesterol.

#### ➤ **Metabolic Risk Factors**

**1. Hypertension-** Hypertension accelerates atherogenesis by a complex process involving coexisting risk factors all of which impair endothelial function. Optimal cardiovascular protection of persons with elevated blood pressure requires more than simply lowering blood pressure. Each major risk factor that clusters with the elevated blood pressure must be corrected if optimal protection is to be afforded. Because the burden of risk factors accompanying hypertension is promoted by weight gain leading to visceral adiposity and insulin resistance weight control is of paramount importance.<sup>[6]</sup>

**2. Diabetes Mellitus-** DM is a well-established risk factor for cardiovascular disease (CVD). People with type 2 diabetes mellitus (T2DM) have a higher cardiovascular morbidity and mortality, and are disproportionately affected by CVD compared with non-diabetic subjects. Diabetic vascular disease is responsible for two-four-fold rise in the occurrence of coronary artery disease and stroke, and two-eight-fold improve in the risk of heart failure. Patient with T2DM and no previous history of CAD have the similar risk for cardiac events as subjects with a prior myocardial infarction.<sup>[7]</sup>

**3. Obesity-** An elevated waist to hip ratio (excess of fat deposition in the abdomen compared with that in hips) is precipitating factor for CVD. Obesity in CVD or CVD in obesity is interlinked to pathogenesis of vascular diseases; hyperlipidaemia, insulin resistance, T2DM, hypercoagulability, etc. The etiopathogenesis of CVDs are interconnected by circulating factors, and adipose tissue is an important source for these circulating mediators, promotes insulin resistance, pro-inflammatory and prothrombotic status, and thus causes CVDs.

**4. Hyperlipidaemia-** High LDL/HDL ratio is the most appropriate marker. An increased lipoprotein 'A' is predisposing factor for CVDs<sup>[8]</sup> It causes atherosclerosis,

a leading cause of mortality globally, as it is the leading cause of CVDs.

**5. Hyperhomocysteinemia-** It is an important factor of CVD. It occurs due to vitamin B and folate deficiency, alcohol, tobacco, renal impairment, certain drugs. Elevated homocysteine promotes atherosclerosis through increased oxidant stress, impaired endothelial function, and induction of thrombosis.<sup>[9]</sup>

#### ➤ **Miscellaneous Risk factors**

**1. Type-A personality-** According to the American Psychological Association, Type A personality refers to "A complex pattern of behaviours and emotions that includes an excessive emphasis on competition, aggression, impatience, and hostility."<sup>[10]</sup> Type A personality has been associated with hypertension and a greater chance of developing coronary heart disease.<sup>[11]</sup>

**2. Elevated fibrinogen level-** Increased fibrinogen level promotes thrombotic diathesis and increases risk of CVD. (Modifiable if causes are behavioural)

These above explained risk factors are interlinked and modifiable major risk factors for CVD. Unmodifiable factors are; Age, race, gender (male to female ratio is 4:1), hereditary.

#### **Prevention of CVD Through Lifestyle Modification**

CVDs can be prevented by modifying above explained risk factors. And adopting a healthy way of living. The combination of some healthy lifestyle factors;

##### **1. Healthy Dietary regime-**

**Intake of seasonal fruits and vegetables-** Inverse associations were observed between intake of apples/pears, citrus fruits, green leafy vegetables/salads and cruciferous vegetables and cardiovascular disease and mortality, and between green-yellow vegetables and cruciferous vegetables and total cancer risk<sup>[12]</sup> Berberine, green tea, cocoa, grapes, beetroot juice, ascorbic acid, apricot, olive seeds, beans, cereals, legumes, nuts are good in hypertension. To follow DASH diet (Dietary approach to stop HTN) to maintain blood pressure.

**Salt Reduction-** For adults: WHO recommends that adults consume less than 5 g (just under a teaspoon) of salt per day. For children: WHO recommends that the recommended maximum intake of salt for adults be adjusted downward for children aged two to 15 years based on their energy requirements relative to those of adults. This recommendation for children does not address the period of exclusive breastfeeding (0–6 months) or the period of complementary feeding with continued breastfeeding (6–24 months).<sup>[13]</sup>

Polyphenoles Flavonoids, soyabean components helps in reducing TC, TGs and LDL.

Intake of complex carbs (polysaccharide) as it is less sweet than simple carbs (monosaccharides and disaccharides) intake of fruits and vegetables.

**2. Physical activity-** Physical activity "dose" reflects a combination of the duration, intensity or frequency of

activity. Thus, defining the amount of physical activity required for health benefits could refer to one or all of these components<sup>[14]</sup> The American Heart Association recommends 30-60 minutes of aerobic exercise three to four times per week to promote cardiovascular fitness<sup>[15]</sup> Physical activity including Meditation and yoga plays very important role to cure any disease. It also helps to maintain a healthy weight, which can reduce the chances of the diseases emerging frequently due to faulty lifestyle.

**3. Smoking cessation-** Quitting smoking provides immediate cardiovascular health benefits, reducing the recurrence risk of coronary events to that of a non-smoker within 3 years and reducing mortality following a heart attack by half over 3 to 5 years. Among patients with symptomatic peripheral artery disease, quitting smoking is associated with improved limb-related outcomes and overall survival.<sup>[16]</sup>

### Prevention Of CVD Through Ayurvedic Approach

In ayurveda prevention of any disease is first line of treatment. Ayurveda gives various regimens to prevent all life style disorders;

**1. Concept of Dincharya and Ritucharya-** For normal circadian rhythm ayurveda suggests a daily and seasonal health regimen known as *Dincharya* (daily regimen) and *Ritucharya* (seasonal regimen) respectively.

The rules followed by wise men after waking up in the morning and wishing for health and wellness are all described in the *Dincharya*. *Dincharya* is the most important aspect of ayurveda described by many *Acharyas* in *Svasthanavritta*. It fulfills the first purpose of Ayurveda i.e., “*Swasthasya Swasthya Rakshanam*” i.e. “To protect the health of a person”.

*Ritucharya* is practice of *Aahara-Vihara*, which is done keeping in mind the condition of the body's doshas according to each season. By following *Ritucharya*, the condition of *Doshas*, *Dhatus* and *Mala* remains in equilibrium. In this way a person remains healthy.

**2. Concept of Sadvritta and Achara Rasayana-** Under the concept of *Sadvritta* (right conduct or ethics) and *Achara rasayana* (code of conduct for happy life) ayurveda gives some good conducts to follow by the person who wants to be happy and healthy physically, mentally, socially as well as spiritually. *Sadvritta* and *Achara rasayana* includes.

**3. Ahara-** *Ahara* (food) is considered *Prana* (life) and 1<sup>st</sup> *Upastambha* (pillar of life) in Ayurveda. Ayurveda emphasises more on *Ahara* than *Aushadha* (medicine). Ayurveda gives knowledge about *Ahara vidhi vidhana* (rules of taking meal), *Dwadasha asana vichara* (twelve rules for taking meal), *Vairodhik ahara* (dietetic incompatibilities), *Satmya- Asatmya* (suitable-unstable), *Pathya-Apathya ahara* (wholesome diet-unwholesome diet) for particular disease.

**4. Rasayana therapy (Rejuvenating therapy)-** *Rasayana* are rejuvenating nutritional and medicinal substances which acts by promoting *Agni bala* (Digestive fire) and providing essential elements to body. For e.g., Use of *Arjuna Ksheer Paka* in *Hridaya Roga* (CVD).

**5. Panchkarma and Shatkarma therapy-** These therapies help to detoxify body and maintaining equilibrium of *dosha, dhatu, mala* in the body. It should be done in appropriate time and season. For e.g.; *Vamana karma* in *Basant ritu*, *Virechana karma* in *Sharad ritu* etc.

### 6. Yogic Procedures for CVD

*Asana-* *Pawanmuktasana, Vajrasana, Sashankasana, Sarpasana, Yoga-mudra, Bhunamana, Gomukhasana, Setuasana.*

*Pranayama (Nadi shodhana). Yognidra, Dhayana.*

### CONCLUSION

The need of current era to eradicate various diseases which are emerging due to faulty life style. The diseases which are emerging due to faulty lifestyle are interlinked to each other, i.e., one disease is risk factor for other various diseases. These disorders can be prevented by lifestyle modification, adopting ayurveda and yoga in day-to-day routine. As a good ayurvedic physician we should aware our patient about harms of sedentary life style, physical inactivity, smoking and other addictions. And to encourage them towards ayurveda based life style, which is a happy and healthy way of living.

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