View Point

Modern Understanding of Cardiovascular Prevention: Ayurvedic Root and a Modern Shoot

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Editorial Comments by Prof RH Singh:
This article authored by a senior conventional preventive cardiologist has obviously focused on the issue of primary and secondary prevention of CVD without much dealing with the uniqueness of Ayurveda and its basic distinctions of Ayurvedic biology and medicine. Ayurveda has real strength in promotive and preventive health care through Ahara-Vihara, lifestyle management, relaxation and practice of Yoga. Ayurveda is pronature-holistic-personalized health care system where Prakriti and Vikriti both are implicated in the total management. Ahara Vihara will vary in different Prakritis in spite of Vikriti being common. Secondly, the Hridaya as described in Ayurveda is different than mere muscular blood pumping organ located in the chest. Hridaya is the seat of Para-Ojas and is the Mulam of Pranavaha, Rasavaha and Manovaha Srotas indicating a continuum between heart and brain on one hand and circulation and respiration on the other. Hence it carries multifaceted risk factors and hence it cannot be tackled with unidirectional reductionist approach like mere pharmacotherapies. However, a wide range of holistic nonpharmacological interventions are conceived for primary and secondary prevention, rehabilitation and adjunct therapy complementary to conventional treatment.

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Modern medicine is beginning to realise that prevention is key to human health,\(^1\) a concept that is the basis of Ayurveda.\(^2\) Ahara (diet), aushadhi (drugs), and vihara (lifestyle) are the three important pillars in Ayurveda. Prevention in modern medicine has a broad remit; encompassing clean healthy environment, personal hygiene, immunisation, lifestyle changes, to even drugs. This article aims to summarise the current understanding and practice of prevention of cardiovascular diseases (CVD) in modern medicine. However, the concepts of CVD in Ayurveda may differ,\(^3\) and the reader is advised to take such differences into consideration.

CVD, comprising of coronary heart disease (CHD) and stroke, remain the commonest cause of mortality in world.\(^4\) However, while the CVD mortality has been declining in the Western countries,\(^5\) it continues to increase rapidly in the low to middle-income countries,\(^1\) including India where CHD now account for the largest number of deaths largely due to poor dietary habits and lack of physical activity.\(^6,7\)

Large epidemiological studies such as Interheart\(^8\) have demonstrated that most CVD is caused by lack of consumption of fruits and vegetables, lack of regular physical activity, abnormal cholesterol, hypertension, smoking, abdominal obesity, diabetes, and intake of excess alcohol, factors which are on the increase in India.\(^9\) Fortunately, most of these factors are preventable, and evidence suggests that almost half of reduction in mortality in CVD seen in the developed countries has been secondary to improved lifestyle (in diet and physical activity) and management of risk factors such as hypertension, smoking, and cholesterol.\(^5\)
Prevention of CVD in modern medicine has traditionally been divided into primary and secondary, with primary being the measures used for prevention before a person develops CHD (in the form of angina or myocardial infarction) or stroke, while secondary prevention being termed for those measures that are instituted after development of these conditions to prevent death. However, prevention is now understood to be a continuum, and the terms primary and secondary are only arbitrary.

Besides, two broad approaches to prevention of CVD have been described: population and the high-risk strategy. The population strategy aims at reducing CVD at the population level through lifestyle and environmental changes targeted at the population, such as a ban on smoking or reducing the salt content of food. In high-risk strategy, preventive measures are taken in those individuals identified as having high CVD risk in order to prevent recurrence or death. Both strategies have advantages and limitations, with the largest preventive effect achieved when both are combined.

The patients with established CVD, diabetes, chronic kidney disease, and peripheral artery disease are already at high CVD risk and require intensive preventive measures to prevent recurrence and death. However, people who are currently asymptomatic and apparently healthy require some kind of a ‘risk assessment‘ to identify those who may be at increased risk of developing CVD so that preventable measures could be instituted (generally performed in men > 40 years and women > 50 years of age). Different risk assessment methods are in use such as Framingham risk calculator, Joint British Societies and SCORE. Most of these methods take into account person’s age, sex, smoking status, systolic blood pressure, and total blood cholesterol to calculate the absolute risk of developing CVD over 10 years which is classified as low, intermediate, and high. Those with low to intermediate risk are advised lifestyle changes (such as diet, physical activity, and smoking), while those at high risk are also considered for drug treatment to reduce hypertension, dyslipidaemia, etc. Use of imaging techniques such as carotid artery ultrasound or calcium scoring with computed tomography is recommended in those with intermediate risk by some guidelines. JBS3, which also takes into account ethnicity (important for South Asians who have 1.5 times greater risk of CVD) and body mass index may be more suitable for use in India in the absence of a validated risk calculator in Indian population.

Below is a summary of salient lifestyle recommendations for prevention of CVD by the European Society of Cardiovascular Prevention and the Joint British Society.

Dietary intake

Ahara in Ayurveda is considered to be one of the three most important pillars of human health and disease, and detailed guidance is provided in this respect for the individuals based on several factors some of which indeed appear to be novel. In preventive cardiology, the aim of a healthy diet is to provide adequate energy intake (calculated in calories) and provide essential nutrients for the individual body requirements. The energy intake should be limited to that needed to maintain a healthy body weight, i.e. a BMI ≤ 25 kg/m². For intake of fats, recommendation is that they should account for 1/3 of total energy intake, of which saturated fats should contribute 1/9 (up to one-third of total fat intake) with remainder being met by intake of polyunsaturated (sunflower oil, soya oil, walnuts, fish oils, etc.) or mono-unsaturated fats (olive & rapeseed oil, nuts and seeds). However, the relationship of saturated fats with CVD is still debated, and there is emerging evidence that those from dairy products may be beneficial. Trans-unsaturated fats, particularly industrially hydrogenated oils (Vanaspati ghee, margarine, etc.) are strongly linked with CVD and should be best avoided or account for < 1% of energy intake. Daily intake of 5-6 portions...
of fruit and vegetables (each portion of about 80 gm) is highly recommended. Consumption of 30-45 gm of fibre is recommended mainly from wholegrain products besides fruit and vegetables. Daily salt intake of <6 gm day is recommended.

Eating fish at least twice a week, one of which has to be oily is recommended based on the protective effect of n-3 fatty acids in reducing CHD mortality by 36%. Recommendations for alcohol intake have recently changed to complete avoidance or maximum intake to 14 units a week for both men and women with increasing evidence of link of alcohol consumption of any level to certain cancers and liver diseases. Other advice on healthy diet includes avoidance or reduced consumption of processed meats or commercially produced foods, refined carbohydrates such as white bread, sugar-sweetened beverages, and calorie rich but nutritionally poor snacks such as sweets, cakes, and crisps or savouries.

It appears that the understanding of a healthy diet in modern medicine is coming closer to that in Ayurveda in terms of eating a balanced, wholesome food comprising of whole grains, plenty of fresh fruits and vegetables, less of processed food, and alcohol. Although modern dietary advice is tailored to individuals according to their body weight and presence or absence of certain diseases such as diabetes, high cholesterol, hypertension, etc; its understanding is still limited when applying diet or Ahara to individual prakriti (constitution), agni (metabolic status), kala (age/time/season), desha (geographical location), satmya (compatibility).

**Physical activity and exercise**

It is now well established that regular physical activity and/or aerobic exercise is related to reduced risk of CVD while sedentary lifestyle is a major risk factor. The guidelines recommend that healthy adults of all ages should spend 2.5 to 5 hours a week on physical activity of at least moderate intensity (walking, cycling, etc.) or 1 to 2.5 hours a week of vigorous activity. This activity should be performed in multiple bouts each lasting at least 10 minutes and evenly spread throughout the week, i.e. on 4-5 days a week. Muscle strengthening exercises are also recommended to be performed on at least two occasions per week. Emphasis is now on an increased level of sustained physical activity and avoidance of prolonged sedentary behaviour for reduction of CVD risk. It is to be noted that excessive exercise is not recommended as a routine for maintenance of health in the guidelines, a factor which according to Ayurveda can cause heart disease.

**Psychosocial factors**

The close relationship between heart and psychological stress has been recognised in Ayurveda (PariharmaVisheshenaManasoDukkhahetavah). Much recent evidence in Western medicine has also now increasingly demonstrated that stress at work and in family life, depression, anxiety, hostility, low socio-economic status, lack of social support, and type D personality contribute both to risk of developing CVD as well as worsening of clinical course and prognosis of CVD. These factors also act to impair efforts in improvement the lifestyle and as a barrier to adherence to treatment. Guidelines recommend that these psychosocial factors should be assessed at the time of clinical assessment by use of simple questionnaires. Use of cognitive-behaviour therapy methods is encouraged which includes a friendly and positive interaction with the patient, understanding their worries and concerns, and taking a step-by-step approach to a shared decision making to enhance lifestyle change and medication adherence.

**Smoking**

Smoking is an established cause of a plethora of diseases and is responsible for 50% of all avoidable deaths in smokers, half of which are due to CVD. While the relative risk of myocardial infarction in smokers > 60 years of age is doubled, in smokers <50 years the relative risk is five-fold higher than in non-smokers. Great strides have
been made in reducing the rate of smoking in developed countries but is increasing in other countries such as India. Smoking tobacco is considered harmful in any form, and there is clear dose-response relationship along with the duration smoked. The benefits of smoking cessation can be almost immediate in some while can take more time in others. Quitting smoking is strongly advised for CVD prevention but can be a complex and difficult due to strong addictive habit. Guidelines recommend use of behavioural counselling and pharmacological support wherever necessary.

Conclusion

With the rapidly increasing incidence of CVD in developing countries such as India with worsening profile of risk factors, Ayurveda has much to contribute to the prevention of these conditions. The Ayurvedic professional societies have to take up this challenge and draw out preventative strategies both at population and individual level in an integrative approach with other medical bodies for successful implementation. Even a simplified guideline combining Ayurveda and Qoga with a message for a healthy diet, exercise, and mental health for the population would go a long way in CVD prevention. Long term success and integration of Ayurveda in prevention and treatment would depend upon a collaborative research with modern medicine in randomised controlled trials to test the efficacy of different treatments.¹⁶

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References


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