

LIFESTYLE AND CORONARY ARTERY DISEASE

The modern age of rapid industrialization, urbanization and globalization has brought about a drastic change in life styles of people all over the world. Life style related diseases especially coronary artery disease, have become the major cause of death and disability all over the world apart from causing a huge economic burden to the society.

What is lifestyle? Lifestyle may be defined as physical, psychological and social ways of living patterns which should promote health (physical, mental, social and spiritual), happiness and well being. There are *four major components* of lifestyle which are linked with coronary artery disease. These components are : 1. Diet ; 2. Physical Exercise; 3. Mental Stress; 4. Tobacco use.

Diet : Several epidemiological studies have shown that diet and nutrition are linked to coronary artery disease (CAD). Saturated fats, trans fatty acids and dietary cholesterol increase the LDLc levels which are directly related to CAD. Mono saturated fats and polyunsaturated fatty acids (especially Omega-3 fatty acids) are protective and may decrease lipid levels. Use of plant sterols/stanols and soluble fibre can achieve further lowering of LDLc levels. Antioxidants present in fruits and vegetables, nuts, tea and red wine may also be helpful in reducing oxidative stress. A healthy cooking oil which is low in saturated fats, high in mono saturated and omega-3 fatty acids (such as mustard oil) should be used. Excess of salt, refined high glycemic carbohydrates and fast foods should be avoided to prevent hypertension diabetes mellitus and obesity.

Physical Exercise : Regular physical exercise (like brisk walking, jogging, cycling swimming or playing games etc.) for about 30 min. daily lowers cholesterol levels, blood pressure, obesity, blood sugar levels and prevents inflammation. Regular exercise also increases the HDL cholesterol. People who maintain an active lifestyle have a 45% lower risk of developing coronary heart disease than sedentary people. Physical exercise is also beneficial in patients with congestive heart failure.

Tobacco Consumption : Any type of tobacco (smoking cigarettes, bidis, hookah, cigar or chewing tobacco) is a leading risk factor for development of coronary artery disease (especially at a young age), stroke and peripheral artery disease. The effects of tobacco on the cardiovascular system are multiple including platelet activation, endothelial dysfunction, inflammation, altered lipid levels and metabolism and hemodynamic effects. Compared to non smokers, smokers have higher risk of sudden death. Even passive smoking increases the risk of heart disease by about 30%. Cessation to exposure to tobacco leads to fast decline in the risk, half of excess risk of acute myocardial infarction is gone in 1 year, most is gone in 3 years.

Mental Stress : There is growing literature suggesting that psychological factors are linked with development of coronary artery

disease and with prognosis in patients following acute coronary events. Following *components of psychological stress* have been linked with development of CAD : a) *depression, anxiety, panic disorder ; b) social isolation and lack of social support; c) acute and chronic life events; and d) type A behaviour, hostility, anger.*

Managing stress by relaxation techniques (especially yoga) have been shown, in several studies, to decrease the risk of morbidity and mortality in patients with CAD.

Modification of lifestyle : Several studies have demonstrated that modification of each life style component (diet, exercise, tobacco and stress) has beneficial effect for secondary and primary prevention of CAD. However, adherence to lifestyle modification has been unsatisfactory.

Role of Yoga – a lifestyle Polypill : Yoga is not merely a few postures or exercises but a holistic intensive life style modification which involves diet control (satvik diet, high fiber vegetarian diet, tobacco avoidance, physical exercise and stress control). Hence, yoga can be considered a life style polypill with no side effects. A few studies have demonstrated that yoga is helpful in controlling risk factors for coronary artery disease like hypertension, diabetes mellitus, obesity, dyslipidemia and mental stress. Three randomized studies using coronary angiography have demonstrated that yoga life style is able to retard the progression of advanced coronary atherosclerosis and even cause slight regression. The compliance with this holistic lifestyle modification has been reported to be excellent. There is need for further and larger studies with yogic lifestyle modifications.

RECOMMENDED READING

1. Rosengren A et al for INTERHEART investigators : Association of psychosocial risk factors with risk of acute MI. In 11119 cases and 13648 controls from 52 countries. *Lancet* 364: 953, 2004.
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3. Mahajan AS et al. AI : Lipid profiles of coronary risk subjects following yogic life style intervention. *Indian Hart J* 41:37, 1999.
4. Ornish D et al : Can life style changes reverse coronary heart disease? The lifestyle heart trial. *Lancet* 336:129, 1990.
5. Manchanda SC et al. Retardation of coronary atherosclerosis with yoga life style intervention. *J.Assoc. phys. India* 48:687, 2000
6. Gupta S et al : Reversal of coronary heart disease by Raj Yoga, vegetarianism and exercise. World congress on clinical and preventive cardiology, Mount Abu, India Sept., 2006.
7. Bensen H : The physiology of Meditation, *Sc. Arm* 226:84, 1972.
8. Alternative Medicine – Expanding Horizons. A report to NIH on alternative medical systems and practices in the USA, 1992.

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ETHICAL GUIDELINES FOR BIOMEDICAL RESEARCH

The need for uniform ethical guidelines for research on human subjects is universally recognised. It has acquired a new sense of urgency as the critical issues in the area of biogenetic research involving human subjects have become acute. Apart from the mandatory *clinical trails on new drugs, a number of diagnostic procedures, therapeutic interventions and prevention measures* including the use of vaccines, are being introduced which involve human subjects. Further the advent of *new medical devices and radio-active materials* and therapeutic benefits of *recombinant DNA products* have added a new dimension to the ethical issues that need to be considered before evaluating these for their efficacy, utility and safety.

Any research using the human beings as subjects shall bear in

mind the following principles of : i) **essentiality**, (ii) **voluntariness**, **informed consent**, (iii) **non exploitation**, (iv) **privacy and confidentiality**, (v) **precaution and risk minimisation**, (vi) **professional competence**, (vii) **accountability & transparency**, (viii) **maximisation of public interest and distributive justice** (ix) **institutional arrangements** (x) **public domain** (xi) **totality of responsibility** and (xii) **compliance**.

Recent advances in the field of **Assisted Reproductive technologies, organ transplantation, Human genome analysis, and gene therapy** promise unquestionable benefits to mankind. At the same time, they raise many questions of law and ethics, stimulating public interest and concern.

(Source : ICMR Publication 2000)