

Short communication**Prevention of heart disease through a vegetarian diet**

D P Atukorale*

*Journal of the Ceylon College of Physicians, 2004, 37, 63-65***Abstract**

There have been a large number of people opting for vegetarianism in the more developed countries where a lot of research has proved specific health advantages of a vegetarian diet in reducing chronic diseases such as heart disease and cancer. There is evidence to show that changes in life style can prevent, retard or even reverse the course of heart disease. Mortality rates of vegetarians is much lower and certain diseases such as diabetes, coronary heart disease, obesity, hypertension and cancer are very much lower among vegetarians when compared to non-vegetarians.

Cholesterol is absent in plant-based diet and fatty acids found in plant foods are usually unsaturated. Majority of vegetarians are non-smokers, have low body weights, and consume more antioxidants and fibre. Vegetable proteins provide protection against coronary heart disease and vegetarians also get sufficient magnesium which prevent coronary heart disease.

A large number of studies done in developed countries have shown that there is reduction of heart attacks in vegetarians when compared to non-vegetarians. Coronary angiography performed before and after placing a group of heart patients on vegetarian diet has shown regression of blockage of coronary arteries when compared to a similar group of patients who were on a non vegetarian diet and non vegetarians have shown worsening of angiograms when repeat angiography was performed.

Key words

Vegetarianism, vegetarian diet, coronary heart disease, antioxidants, fibre, coronary angiography, obesity, hypertension, diabetes, saturated fat, cholesterol.

Introduction

There has been a large number of people opting for vegetarianism in the more developed countries like

U.S.A and U.K. where a lot of research has proved specific health advantages of a vegetarian diet in reducing the risk of coronary heart disease (CHD) and cancer. In Sri Lanka at present, the younger people think it is good to follow the West and eat meat while the younger people in the West are increasingly feeling that it is undesirable and unhealthy to eat meat. The medical profession is revealing more and more reasons why meat eating has its problems.

Mahatma Gandhi made "Ahimsa" a movement among workers of Freedom Movement and all his followers were primarily vegetarians. When we talk of vegetarianism, some of us think of visible items such as cereals, fruits and vegetables, their appearance, their taste and the cost. But we forget the invisible component of vegetarianism which is linked with what has been mentioned as "Ahimsa" which is the root of vegetarianism.

Vegetarian diet has vast significance on our central nervous system and our endocrine system. Behaviour patterns of vegetarians are quite different from those of non vegetarians and majority of vegetarians do not consume alcohol. Psychiatric illnesses are rare among vegetarians.

An increasing number of Americans and Europeans are turning to vegetarianism. But in spite of the concept of "Ahimsa" preached in Buddhism and Hinduism, majority of Buddhists and Hindus in Sri Lanka are non-vegetarians.

There is evidence to show that changes in life style can prevent, retard and reverse the course of coronary heart disease (CHD).

The incidence of CHD has been increasing in Sri Lanka over the last 50 years whereas it has been declining in the West. There is evidence to show that mortality rates of people who takes vegetarian diet is much lower than that of non-vegetarians and that incidence of certain diseases such as cancer, obesity, hypertension, CHD, and diabetes mellitus is lower among vegetarians. Cardiovascular disease (CVD) is the leading killer of mankind both in developing and developed countries and the incidence is rapidly increasing. In India alone, there have been 40 million

* Retired Senior Consultant Cardiologist, National Hospital of Sri Lanka, Colombo.

people suffering from CVD in the year 2000 according to WHO statistics. By the year 2007, it is expected that more than 52 million people will be suffering from CVD in India.

There is a lot of economic loss dealing with CHD as the investigations such as coronary angiography, exercise electrocardiography (stress testing) and two dimensional echocardiography (2D echo) and treatment of CHD involving procedures such as angioplasty (PTCA), stenting and coronary artery surgery (CABG) are extremely expensive. If all the people could become vegetarians, about 50 percent of CHD could be prevented.

Hypertension

This is less common in vegetarians. Boston study¹ has shown that both systolic and diastolic hypertension are less common among vegetarians. In vegetarians especially the Seventh Day Adventists who are basically vegetarians, CHD and hypertension are less common.

Serum cholesterol and CHD

There is correlation between serum cholesterol and incidence of CHD. Higher the serum cholesterol level, higher is the risk of developing a heart attack. One percent decrease in the serum cholesterol level decreases the CHD risk by 2 percent. As the low density lipoprotein cholesterol (LDL) level is low in vegetarians their coronary risk is also low.

Dietary cholesterol and saturated fats are definitely important factors in the causation of heart attacks. People in East Finland, Laplanders, Greenlanders and people in Northern Ireland are among the worlds highest consumers of animal fats which contain cholesterol and saturated fat. These people have the worlds highest rates of CHD.

People in southern parts of Japan, Bulgarians and Russian Caucasians who eat very little animal fat have very low rates of CHD and a significant proportion of them live over 90 years.

Cholesterol is absent in plant-based diet and is found only in animal fat. Saturated fat which is mainly found in animal fat such as meat, liver and milk is converted to LDL (bad or atherogenic) cholesterol in the liver. Brain, liver and kidneys have large amounts of cholesterol and saturated fats. Fatty acids found in plant foods are usually unsaturated and these decrease the level of LDL cholesterol. Two exceptions are coconut oil and palm oil which contain medium chain fatty

acids(MCFA) unlike long chain fatty acids (LCFA) present in animal fat and MCFA don't increase the level of LDL cholesterol in man^{2,3}.

In non-vegetarians the excess of cholesterol is deposited as LDL cholesterol in the inner wall of coronary arteries resulting in atherosclerosis. The atheromatous plaques in the coronary arteries cause CHD which is the biggest killer in Sri Lanka and all other developing and developed countries.

Most of the vegetarians are health conscious and do not smoke and they take regular exercises and are physically active. Vegetarian's also have low body weights and obesity is less common among vegetarians when compared to non-vegetarians. Vegetarians consume more antioxidants such as carotenoids, vitamin C and vitamin E. So high fibre diet, low blood cholesterol, stopping smoking and intake of antioxidants help vegetarians to prevent CHD.

Since 1950, many studies have been done to compare the prevalence of heart disease among people who eat different types of food. Snowden et al⁴ who monitored 25000 vegetarians from 1960 to 1980 found that there is a reduction of heart disease by over 60 percent among vegetarians when compared to non-vegetarians in USA.

A study conducted in Norway in 1991 by Fonebo⁵ showed that vegetarians have half the rate of CHD of the general Norwegian population.

A group of researchers from Cornwell University of Chinese Academy of Preventive Medicine surveyed 650 people in China whose diet is essentially vegetarian and found that the prevalence of CHD is one fifth that of a comparable portion of US populations⁶. A group of scientists at Harward University led by Dr. Frank Sachs⁷ compared 73 males and 43 female vegetarians with a corresponding non vegetarian population. They found that vegetarians had only 68 per cent of blood cholesterol of meat eaters. The level of LDL cholesterol was 39 percent lower in vegetarians.

M Sei and Miyoshi at Tokushima University School of Medicine⁸ found that intake of animal protein was associated with increase in CHD risk.

Vegetable protein and dietary fibre

Vegetable protein and dietary fibre provide protection against CHD. The dietary fibre lowers blood cholesterol and coronary disease risk by 40 percent⁹. It is the soluble fibre in legumes such as beans, oat bran, carrot and outer covering of fruits like apples that

lowers the level of blood cholesterol. Animal based diets do not contain soluble fibre and of course do not contain vegetable proteins. Therefore to avoid CHD through vegetarianism means becoming a vegetarian.

High iron content

High iron content of red meat is a risk factor for CHD. Iron in excess acts as a catalyst of lipid peroxidase free radical which plays an important role in the causation of CHD. Meat and liver contain both cholesterol and excess iron and the risk of CHD increases 4 times by their consumption whereas vegetarian diet lacks both cholesterol and excess iron and therefore prevents or retards CHD.

Magnesium deficiency

Deficiency of magnesium is a known risk factor in the pathogenesis of CHD and strokes¹⁰. CHD is less common in areas with hard water having magnesium. Magnesium deficiency plays a major role in elevating serum cholesterol and causes coronary artery spasm, may precipitate an attack of myocardial infarction and enhances cardiac arrhythmias such as ventricular tachycardia. In most diets, cereals and green vegetables contribute to major portion of magnesium intake and vegetarians get sufficient magnesium. In animal kingdom magnesium is found only in the bones.

Vegetarianism in then treatment of heart disease

Dr Dean Onish of the University of California

stopped the medication of a group of heart patients and placed them on a vegetarian diet and compared with another non-vegetarian group which continued the medication. Coronary angiography was performed at the beginning of the trial and again at the end of one year and these showed that 82 percent of the patients on vegetarian diet showed regression of blockage of arteries without the use of any medication. The patients who were not vegetarians had worsening of the coronary angiograms¹¹. Vegetarianism will help you to stay healthy and live longer.

References

1. Boston Study quoted by Prof. S C Machands in "Benefits of Vegetarian Nutrition" 1997, edited by Dr. Umesh Kapl, page 59.
2. Hegsted DM, et al. *Am. J. of Clinical Nutrition* 1965; 17: 281.
3. Greenberger NJ, Skflman TG. *New Eng. J. Med* 1962; 280: 1045-58.
4. Snowden DA et al. *Preventive Medicine* 1984; 13: 490-500.
5. Fonebo V. *Journal of Clinical Epidemiology* 1992; 45(2).
6. Chen Z, et al. *BMJ* 1991; 303: 276-82.
7. Sach FM, et al 1975, 292, 1148-51.
8. Sei M, Mioshi T. *Japanese Journal of Hygiene* 1991; 47(5): 901-12.
9. Kushi L H, et al. *New Eng. J. Med.* 1985; 312: 811-18.
10. Burch GE, Giles T D. *American Heart Journal* 1977; 94: 649.
11. Omish D, et al. *Lancet* 1990; 336:129-33.