Chapter III

Summary
234 patients having CAD were selected from the outpatient department of L.F. Hospital. Their height, weight, BP and heart rate were noted. Risk factors were analysed using questionnaire.

Average height of subjects was 151.70 cm and weight was 60 kg. Smoking was the major identified risk factor in this local rural setting. High cholesterol level, alcoholism, beef intake and high caloric intake have played a role in the development of CAD in this area.

Analysed data revealed that 49.56% of people were smokers. Among the smokers 50% were heavy smokers and 50% were occasional smokers. Lipid profile analysis of healthy subjects and diseased subjects exhibited significant difference. Total cholesterol, LDL, VLDL, and
triglyceride levels were higher in CAD subjects than healthy subjects. HDL level in the healthy subjects and CAD subjects were almost similar. But ratio of TC/HDL in the CAD subjects were higher than healthy subjects.

Alcoholism was very common and most of these cardiac patients used alcohol occasionally. Analysis of dietary habits showed that rice, tubers, pulses, fish, vegetables, beef were most common items. Coconut kernel was used for making curries and sweets. Coconut oil was the cooking medium. Consumption of fresh vegetables was very rare. Consumption of fruits depended on availability. Intake of tea and coffee was higher. Data showed that 40% people were heavy workers, 30% were moderate workers and 30% were sedentary. The subjects had tensions from worry about their disease, future of children and economic status. Mean Blood Pressure was 128/80. 15% of people exhibited hypertension.

Among this 234 CAD patients, 72 TMT positive patients were advised to follow the modified diet and lifestyle. Modified diet means a diet with more fruits and vegetables with reduced fat content. Modified lifestyle
means, cessation of alcoholism, quitting of smoking, reducing tension and doing walking exercise.

50 participants strictly followed the modified diet and lifestyle, and they were included in the intervention group. 22 subjects did not follow diet and lifestyle strictly, but reduced their fat content and changed their lifestyle. They were included in the control group. After 2 years, subjects in the intervention group exhibited the reduction in the risk of CAD. In the control group, some changes were observed, but the changes were not significant as in the intervention group.

In this Diet Intervention Trial, lipid profile values changed both in intervention group and control group. But significant change was observed only in the intervention group while changes in the control group were not significant. After 2 years, TMT became negative in 12 subjects and exercise tolerance rate increased in 16 subjects in the intervention group. In the control group, no patients exhibited negative TMT, but exercise tolerance rate
increased in 7 patients. Blood pressure also changed, but there was no significant difference.

In the intervention group, total cholesterol reduced significantly (P<.001). HDL cholesterol which is known as good cholesterol increased more in the intervention group (P<.05) than control group. LDL which increases the risk of CAD, decreased significantly in the intervention group (P<.05) but there was no significant reduction in the control group. Level of triglyceride also reduced to a significant level (P<.05) in the intervention group.

Participants of intervention group and control group used coconut oil for cooking. In spite of using coconut oil for cooking, lipid profile changed in a desirable way. The above study proved two facts; (1) modification of diet and lifestyle could reduce the risk of CAD. (2) Coconut oil consumption does not increased the risk of CAD by changing the lipid profile level.
But this study does not revealed the independent role of diet or coconut oil in the development of CAD.

Animal studies conducted in rabbits revealed the independent role of diet and coconut oil. For this 30 healthy male rabbits were selected. After acclimatisation period they were divided into three groups; One group given control diet, one group supplied with cholesterol along with diet and a third group supplied coconut oil along with their diet.

Control group exhibited no changes in the biochemical and histological aspects.

Cholesterol fed group and coconut oil fed group animals exhibited both biochemical and histological changes. Lipid profile values increased to a significant level in the cholesterol fed group. Smooth muscle cell proliferation, development of foam cells and fatty streak formation were observed in the intima of aorta of all animals.
In the coconut oil group lipid profile values increased significantly. Smooth muscle cell proliferation and fatty streak formation were observed in 66% of animals. But biochemical and histological changes were not so high as in cholesterol fed group. This part of study proved that diet plays an independent role in the development of atherosclerosis and coconut oil can induce atherosclerosis.

In the first part of study, we have seen that coconut oil consumption does not produces any atherogenic effect by altering blood chemistry. But studies conducted in animals revealed that coconut oil is hyperlipidemic and atherogenic in rabbits.

Results of this study lead us to think in following way. (1) Coconut oil consumption may not produce any atherogenic effect in human beings. (2) Or it may have some atherogenic effect, but these atherogenic effect may be suppressed by other factors in the diet and lifestyle.

Human beings usually take some amount of onion, garlic, mustard and fenugreek seeds through their diet. All these have hypolipidemic effect.
Beyond this our modified diet and lifestyle advised to take more fruits and vegetables which contain fibre and antioxidant vitamins in high concentration which have a protective role in the development of CAD.

The modified lifestyle advised to do walking exercise and reducing the tension. Physical activity can increase the HDL level and can the risk of CAD.

Whether coconut oil have any atherogenic effect in human beings is to be further evaluated.