Abstract

Cardiovascular diseases are the leading cause of death globally. Intense research activities in this area over the last sixty years have unraveled many mechanisms and risk factors for the development of the disease. It has also been possible to identify false leads, and confounding theories and to rectify them. One of the wrong leads has been the “Dirt Heart” hypothesis which states that bad diet leads to elevated cholesterol which leads to atherosclerosis, while high cholesterol is one of the risk factors, it is not the cause for it.

Inflammation as a possible mechanism proposed almost a century ago as a cause of atherosclerosis is resurfacing, where heart diseases are understood to be because of inflammation. Many pro inflammatory signals are shown to correlate with the disease. The one and only antiatherogenic factor in blood, namely high density lipoprotein is being looked upon not only as a means of transporting cholesterol from the periphery to the liver, but also as an antioxidant and anti inflammatory molecule.

While genetics may play a significant role in the susceptibility of an ethnic group to heart diseases, the role of environment, diet and life style perhaps play a major role. In order to investigate the possible influence of diet, life style and environment on the risk of heart diseases, this study was taken up on a migrant group living in Mysore, namely the Iranians.

Iranian population in Mysore are genetically distinct from the Indians, but exposed to the same risk factors as Indians. The objective of this study was to compare the classical and novel risk factors among this group in comparison with Iranians in Iran and Indians.

Our results show that the serum lipoproteins of Indians readily get oxidized by Cu++ or benzoyl peroxide. Thiobarbituric acid reactive substances are formed with increased duration of oxidation. Exogenourly added vitamins E or Ascorbic acid could not protect the lipoproteins from getting oxidized.

Interestingly, the serum lipoprotein of Iranians living in Mysore also showed a similar profile of Cu++ and Benzoyl peroxide catalysed oxidation. The serum of
Iranians had comparable amounts of endogenous antioxidants. Surprisingly, the serum lipoprotein of Iranians in Iran were resistant to oxidation by either Cu++ or Benzoyl peroxide even though their anti oxidant potential in the serum was similar to that of Indians.

The total cholesterol and total Triglycerides of Indians were significantly higher than that of Iranians. The HDL-C of Iranians was significantly higher than that of the Indians. Their PON activity was also higher than that of Indians. However, the Iranians in India had lower HDL-C than the Iranians in Iran.

Comparison of life style and diet showed that Iranians consumed more fruits than Indians, even though most Indians in the study were predominantly on a vegetarian diet. Iranians used more meat and meat products than Indians.

There was no significant difference in the other risk factors such as cigarette smoking, blood pressure, exercise / physical activity, BMI, W/H ratio and inflammatory marker in the blood.

Taken together, our results suggest that consumption of high amounts of fruits and nuts and use of olive oil in the diet distinguishes Iranians from Indians. Similarity of life style and classical risk factors yet higher HDL and higher PON activity in the blood of the Iranians suggests that diet can make a different to the conventional risk factors.