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Genetic Risk And Adherence to Healthy Life Style for Prevention of Coronary Artery Disease

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Abstract: *Risk factors for coronary artery disease was described in 1930. They are obesity, hypertension, hyperlipidemia, diabetes, smoking, obstructive sleep apnea, insulin resistant, increased C-reactive protein, hyperfibrinogenemia, plasminogen activator inhibitors.*
Aim of the study: *Analyse the preventive aspects of coronary artery disease which include diet, exercise, relaxation methods etc.*
Patient and methods: *50 patients in Govt. Medical College, Kozhikode in the period December 2014 to June 2015 studied prospectively. Their life style and genetic risk factors were compared to the other group. Evaluation was based on body weight measurement, LDL, HDL, BMI, blood pressure.*
Conclusion: *The incidence of coronary artery disease was considerably low in the control group.*
Key words: *HDL, LDL cholesterol*

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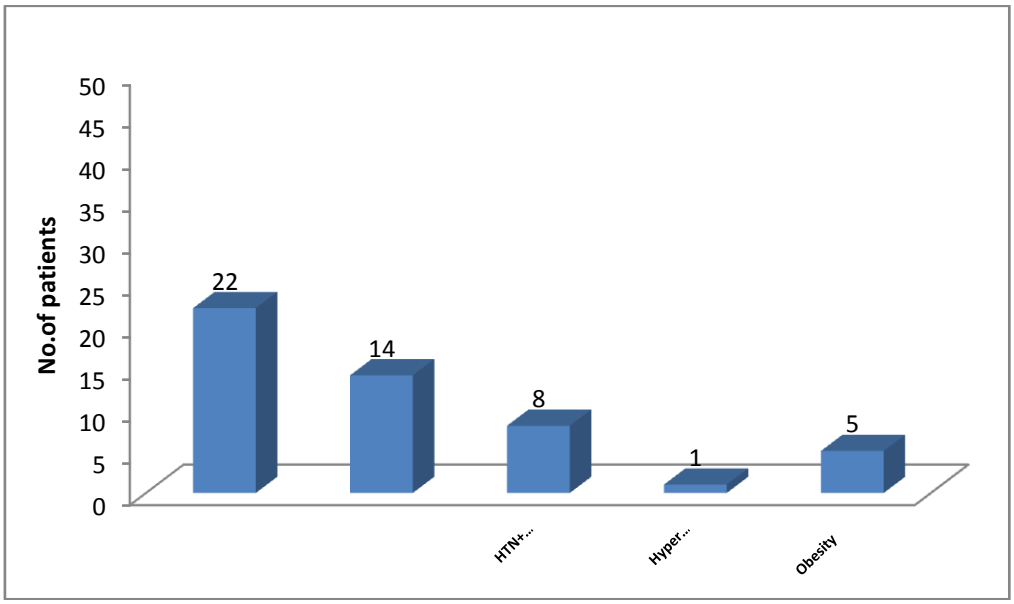
I. Introduction

1. Coronary artery disease is a disease leading to 50% mortality in developed countries. The economic burden in USA is 176 million dollars per year for this disease. It is also a killer disease in developing countries. The study highlights the importance of prevention of coronary artery disease.
2. **Patients and methods**
   Prospective study in Department of General Medicine, Govt. Medical College, Kozhikode, from December 2014 to June 2015 in 50 patients with various risk factors for coronary artery disease was studied. Male: Female was 10:1. Study was done in the age group of 45-55 years.
3. **Exclusion criteria**
   Other causes of coronary artery disease like aortic stenosis, collagen vascular disease were excluded.
4. **Statistical analysis**



II. Indentations And Equations

Body mass index = Weight in kg / Height in m^2
Male = 20-25; Female 18-23; Obesity >30

III. Discussion

According to JNC report,

Table 1: JNC report

Weight reduction	Body Mass Index (18.5-24.9kg/m^2)	Systolic blood pressure decreases 5-20mmHg
Diet	Fruits, vegetables, low fat dairy products, decreased saturated fat	Systolic blood pressure decreases 8-4mmHg
Sodium restriction	100mmol/day	Systolic blood pressure decreases 4-9mmHg
Moderate alcohol	Not more than 2 drinks per day	Systolic blood pressure decreases 2-4mmHg

Table 2: Diet recommendations

Saturated fat	Less than 7% total calories	LDL decreases by 8-10%
Trans fat	Less than 1% total calories	LDL decreases by 1-2%
Cholesterol	Less than 200mg	LDL decreases by 3-5%
Viscous fibers	5-10g	LDL decreases by 3-7%
Plant steroids	2g/kg	LDL decreases by 6-15%
Soy protein	5-10g	LDL decreases by 3-5%

Table 3: American Heart Association strategic goals 2020

Fruits and vegetables	≥4-5 cups/day
Fish	2 or more servings per day
Fiber rich in whole grain	>1.1 gm/kg
Sodium	<1500mg/kg

3.1 Diet

Whole grains, ground or crushed is endosperm, wheat, oats, barley, bran, rice, sorghum. They have fibers, phenolic compounds, viscous fiber rich in vitamin B, vitamin E, magnesium, calcium, potassium, phosphorous, selenium, zinc, iron, phytosterols, phytochemicals. They are rich in betaglucan which inhibits cholesterol synthesis by fermentation method. It stimulates fatty acid oxidation, inhibits lipogenesis and glucose production. 20grams of grain contain 2-3grams of phytosterol decreases 6% LDL, decreases cholesterol 7-8%, decreases systolic blood pressure 4-8mmHg.

3.2 Heart healthy protein

Snack foods and fast foods are dangerous foods having saturated fat. Low saturated foods are lean meat, poultry, cottage cheese, low fat milk diary products.

3.3 Fish

Fishes like macqurel, sardine, salmon, anchovis are rich in omega 3 fatty acid. They have low saturated fatty acid contain phytochemicals and flavonoids. Phytates decrease oxidative stress and impair plated function and aggregation. 1gram/day of omega 3 fatty acids decreases triglyceride 25-35% and increases HDL. Omega 6 fatty acids have proinflammatory prostaglandins and decreases inflammation which is a contributory factor of arthrosclerosis.

3.4 Olive oil is rich in oleic acid. It contains alphatocopherol, phytochemicals which decreases LDL, increases HDL

3.5 Sterols are seen in yogurt, mayonnaise, vitamins. It decreases cholesterol, 1gram of sterol decreases LDL 5-8%.

3.6 Vitamins

Vitamin B6, B12 deficiency leads to homocysteinemia. Vitamin E (USFDA) meta analysis placebo trials with 72 patients decreased triglyceride 25%, increased HDL 11%. Vitamin C, Carotenes are antioxidants. Vitamin D deficiency increases oxidative stress and cell adhesion. Eicosapentanoic acid and dexahexanoic acid 1-2gram /kg decreases blood pressure and triglyceride level. Niacin 1-2gram decreases fatty acid level, increases HDL 25-50%, decreases cholesterol 2%, decreases LDL 5-20%. Vitamins decreases metabolic syndrome by 14%.

3.7 Soy protein

USFDA recommends 2.5gram of soy protein per day decreases cholesterol (9.5%) and LDL (12.9%) and increases HDL.

Exercise

150 minutes per week decreases 30% body weight.

Stress Management

5.5 hour per week yoga decreases body weight 4kgs, decreases triglyceride level, decreases cholesterol, decreases blood pressure, decreases heart rate.

VI. Conclusion

Study showed that diet and life style has got a very major role in coronary artery disease. Cardioprotective diet like fruits, vegetables, whole grain, fish and essential vitamins decrease the incidence of the disease considerably.

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