

(14) STUDY OF LIPID PROFILE IN BELOW AND ABOVE THE 45 YEARS OF AGE GROUPS OF MALE AND FEMALE

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ABSTRACT:

INTRODUCTION: Atherosclerosis of the coronary artery disease is the most common cause of myocardial ischemia. Many large scale analyses have demonstrated a nearly linear correlation between the total cholesterol and low density lipoprotein (LDL) cholesterol and the severity of atherosclerosis. It has also been seen the inverse relationship between symptomatic atherosclerosis and the high density lipoprotein (HDL) cholesterol level.

OBJECTIVE: The goal of our study to estimate total cholesterol, HDL and LDL level in below and above the 45 years of age groups of male and female.

METHOD: 20 male and 20 female are below the 45 years of age and 20 male and 20 female above the 45 years of age. The entire subject were instructed about study and written consent taken. History and clinical examination was done.

Blood from vein is drawn for estimation of total cholesterol, HDL cholesterol and LDL cholesterol. Total serum cholesterol, serum LDL cholesterol and serum HDL cholesterol level is estimated in biochemistry laboratory by calorimetric method. Statistical analysis was done by unpaired t test. P value less than 0.05 considered as a significant.

RESULTS: Total cholesterol level is significantly ($p < 0.001$) higher in above 45 years male and female than below 45 years of male and female. HDL cholesterol level is not significantly ($p > 0.05$) change in below and above 45 years of male. LDL cholesterol level is significantly ($p < 0.001$) higher in above 45 years of male and female than below 45 years of male and female. HDL cholesterol level is significantly ($p < 0.001$) higher in above 45 years of female than below 45 years of female. Male have higher LDL cholesterol level than female in both the age groups.

CONCLUSION: Total cholesterol level and LDL cholesterol level are significantly ($p < 0.001$) higher in above 45 years male and female than below 45 years of male and female. HDL cholesterol level is significantly ($p < 0.001$) higher in above 45 years of female than below 45

years of female but HDL cholesterol level is not significantly ($p > 0.05$) change in below and above 45 years of male.

KEY WORDS: Atherosclerosis, lipoprotein, LDL, Cholesterol, HDL, myocardial ischemia

MAIN ARTICLE

INTRODUCTION:

In 1951, Barr et al has documented the negative association between high density lipoprotein (HDL) and ischemic heart disease (4). It was not realized and considered seriously till 1975 when Miller and Miller put forward their "HDL hypothesis" they proposed that high density lipoprotein (HDL) serves as carrier function clearing cholesterol from arterial tissue and transporting to the liver for catabolism and excretion (5, 7). HDL cholesterol is known as "good" cholesterol because it seems to protect against heart attack (Low HDL below 40 mg/dl increase the risk of heart disease) (1, 6).

Medical expert think that HDL tends to carry cholesterol away from the arteries and back to the liver, where it's passed from the body. Some expert believed that HDL removes excess cholesterol from plaque in arteries, thus slowing the build up (2, 5). The risk of coronary heart disease rises as blood cholesterol level increase. A person at level 240 mg/dl of total cholesterol and above have more than twice the risk of heart disease as someone whose cholesterol level is below 200 mg/dl (3).

If patient do not have coronary heart disease or diabetes LDL goal is <160 mg/dl. If there is no coronary heart disease or diabetes and have two or more risk factors LDL goal is less than 130 mg/dl (1, 8). If coronary heart disease or diabetes are present LDL goal is < 100 mg/dl. NCEP (National Cholesterol Education Programme) Guideline = HDL < 40 mg/dl as low, implying as increased risk of CVD.

MATERIALS AND METHODS:

Present study was carried out in 40 male and 40 female. Out of which 20 male and 20 female were below 45 years of age and 20 male and 20 female were above 45 years of age.

Experimental protocol was explained and consent was taken.

History was taken and clinical examination (general and systemic) done for inclusion and exclusion criteria.

➤ Inclusion criteria:

- 1) Male and Female with age group of below and above the 45 years.**
- 2) Healthy individual without any known disease.**
- 3) No history of drug, blood transfusion or any condition that affect blood cell count.**

➤ **Exclusion criteria :**

- 1) Individual with any known general or systemic disease.
- 2) Any history of drug or medication that affect blood cell count.
- 3) Female with pregnancy and menstrual period.
- 4) Any un co-operative individual.

➤ **Experimental Protocol :**

- 1) All the subjects filled the consent form that they are willing to participate in the study.
- 2) History and clinical examination was done for inclusion and exclusion criteria.
- 3) Subject's total serum cholesterol, serum LDL cholesterol and serum HDL cholesterol level is estimated in biochemistry laboratory by calorimetric method.
- 4) Then mean value and standard deviation was estimated by statistical method.

STATISTICAL ANALYSIS:

Unpaired t test is used for analysis and P value less than 0.05 consider as a significant.

RESULTS:

Total cholesterol level is significantly ($p < 0.001$) higher in above 45 years male and female than below 45 years of male and female. HDL cholesterol level is not significantly ($p > 0.05$) change in below and above 45 years of male. LDL cholesterol level is significantly ($p < 0.001$) higher in above 45 years of male and female than below 45 years of male and female. HDL cholesterol level is significantly ($p < 0.001$) higher in above 45 years of female than below 45 years of female. Male have higher LDL cholesterol level than female in both the age groups.

TABLE 1: Total cholesterol, HDL cholesterol and LDL cholesterol in above and below the 45 years of male:

Parameters	<45 years	>45 years	Significance
Total cholesterol (mg/dl)	184.40 ± 10.59	223.15 ± 27.15	S
HDL cholesterol (mg/dl)	46.75 ± 3.90	46.90 ± 3.94	NS
LDL cholesterol (mg/dl)	124.46 ± 15.53	152.25 ± 19.85	S

TABLE 2: Total cholesterol, HDL cholesterol and LDL cholesterol in above and below the 45 years of female:

Parameters	<45 years	>45 years	Significance
Total cholesterol (mg/dl)	163.00 ± 7.99	211.20 ± 27.43	S
HDL cholesterol (mg/dl)	54.05 ± 2.16	57.10 ± 2.21	S
LDL cholesterol (mg/dl)	97.05 ± 7.02	128.20 ± 22.07	S

Data presented are Mean ± SD (standard deviation)

NS: not significant (P>0.05)

S: significant (P <0.05)

DISCUSSION:

In our study, the women below age group of 45 years were having significantly ($p < 0.001$) lower serum total cholesterol level than men of same groups. But after 45 years of age women showed a sharp rise in its level. In this age group the difference in the serum total cholesterol level in men and women both were not significant ($p > 0.05$).

In male, HDL cholesterol level is the same in both age groups under study. But, in female, there was significant ($p < 0.001$) increase in its serum level. The age effect on serum HDL in case of male and female both in our study was in accordance with Heiss et al (1980) and report of American Heart Association June 5, 2004. A failure to detect a decrease in HDL levels in women at ages after menopause argues against a major influence of estrogen levels in older adult women (2, 5). A gonadotropin effect on HDL may be responsible for maintenance of HDL.

In our study LDL cholesterol in both sexes increased with ages. Male have higher LDL cholesterol level than female in both the age groups. HDL cholesterol is known to have a protective role in formation of atherosclerosis also known as "Cardio protective cholesterol" (7, 8). What is more disturbing is that in India, coronary artery disease occurs at a younger age group and the atheroma is more extensive (3, 6).

CONCLUSION:

Total cholesterol level and LDL cholesterol level are significantly ($p < 0.001$) higher in above 45 years male and female than below 45 years of male and female. HDL cholesterol level is significantly ($p < 0.001$) higher in above 45 years of female than below 45 years of female but HDL cholesterol level is not significantly ($p > 0.05$) change in below and above 45 years of male.

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