ISSN-1680-9955

Pak. J. Anal. Chem. Vol. 5, No. 2, (2004) 65-67

Variation Profile of Low-Density Lipoproteins Cholesterol (LDLC) in Sever Psoriatic Patients

S.M. MAHESAR[1], M. UMAR DAHOT[2] AND M.Y. KHUHAWAR[3] AND H. MAHESAR[4]

[1]Biochemistry Department, Chandka Medical College, Larkana.
[2]Institute of Biotechnology and Genetic Engineering, University of Sindh, Jamshoro.
[3]M.A. Kazi Institute of Chemistry, University of Sindh Jamshoro.
[4]Department of Physiology, University of Sindh, Jamshoro.

Abstract

The measurement of the low-density lipoproteins cholesterol from the blood samples of normal and psoriatic patients males and females proceeded by adding polyvinyl sulphate to the sample which precipitates low density lipoproteins cholesterol. The concentration of low-density lipoproteins cholesterol (LDLC) was calculated from the difference between the serum total cholesterol and the cholesterol in the supernatant after centrifugation.

Key words: Low density lipoproteins, Sever psoriasis, Blood samples

Introduction

Low-density lipoproteins cholesterol (LDLC) is the component of lipid profile of the blood constituents. The psoriasis is the disease of autoimmune system also named inflammatory disease. Psoriasis spread with the combination of factors influencing the normal mechanism of the body or metabolic disorders. These factors are antibody antigen reactions, blood transfusions, drug eruptions, chemical or protein allergies, eczema, Keratolytic and white blood cells disorders. The lipoproteins in association with lipid such as hyperlipidemea, hypercholesterolemia and hyperlipoproteinemea may increase in the blood stream. Greasy diet, nucleoproteins, such as meat, poultry, eggs, butter or fat effect the normal Keratinization.

Materials and Methods

The blood samples of normal and sever psoriatic patients males and females obtained from the persons of different professions included business man, students, teachers, doctors, nurses, labours, sports players, officers, growers and households. The psoriatic patients mostly found in industrial areas and in dermatology department of Liaquat University of Medical and Health Sciences, Civil Hospital Jamshoro and Hyderabad. A 79 blood samples of normal subjects comprising 44 of males and 35 of females and 79 blood samples of psoriatic patients obtained in proportion of 44 and 35 for males and females respectively. The intravenous blood samples of controls and psoriatic patients were taken by 5cc disposable syringe (B.D) and immediately preserved in E.D.T.A (in sterilized CP bottles).

Reagents

0.86mg of polyvinyl sulphate was diluted to 1 liter with distilled water.

Precipitant

1.0ml solution from bottle 1 a (Accelerator) mixed in to polyvinyl l bottle (5.25 ml) which is stable for 4 weeks at 25^{o}C.

Chod-PAP Cholesterol precipitant

0.44mmol of Phosphotungistic acid mixed with 20m $MgCl_2$.

Procedure

To 0.2 ml of sample 0.1-ml precipitant was added. The contents were mixed and it was kept for 15 minutes at room temperature. After centrifugation, the supernatant from the sediment was separated and cholesterol was determined by CHOD - PAP method. Test tube marked RB (reagent blank) and test tube marked S for sample. In tube RB (reagent Blank) 0.05ml of redistilled water and 2 ml of reagent solution was mixed and at the same time in tube "S" 0.05ml of supernatant and 2 ml of reagent solution was also mixed. Incubated both the test tubes for 10 minutes at 20 - 25°C. The absorbance of sample against RB was measured after 1 hour at wavelength Hg 546 nm or 500-nm spectrophotometer [1-2].

Calculations

Wavelength, Hg546 =519.4 x A_{Sample} =mg/ dl. 13.46 x A_{Sample} = m mol/ 1.

Wave length, 500 nm =350.1 x A_{Sample} = mg/dl. 9.07 x A_{Sample} = m mol/ 1.

L.D.L cholesterol = Total cholesterol - cholesterol in supernatant.

Normal values

Male and Female = 150mg/dl.

Results and discussions

The low-density lipoprotein cholesterol from human blood of each (44) normal and psoriatic male and each of (35) normal and psoriatic female subjects was determined and results are summarized in Fig.1, 2 and Table-1. Low-density lipoprotein cholesterol concentration from human serum of normal and psoriatic male and female subjects ranged from 75 to 145, 130 to 165, 80 to 144 and 130 to 172 mg / 100 ml^{-1} respectively. Average concentration of low-density lipoprotein cholesterol in normal male subjects and in psoriatic male subjects observed at 95% confidence level was 118 ± 4 and 148 ± 3. The S.D values were 14.8, 9.8 and the values of coefficient of variation (CV %) was 12.6% and 6.6% respectively. Average concentration of low-density lipoprotein cholesterol in normal and psoriatic female subjects observed at 95% confidence level was 114 ± 5 and 146 ± 3. The values of S.D were 15.0, 11.6 and the values of coefficient of variation (CV %) was 13% and 8% respectively. A significant difference was noted in both male and female psoriatic patients as compared to normal subjects. It was observed that LDLC concentration in psoriatic patients was increased as compared to normal human subjects. The calculated values were compared with the reported normal average values in male and in female ranged from100-150 mg / 100 ml^{-1} of blood. The calculated values of serum cholesterol contents correlated with the reported values of LDL cholesterol for certain inflammatory diseases. Bierman [3] reported that total cholesterol comprises all the cholesterol found in various lipoproteins divided in three risk groups relative to cholesterol levels such as (a) Desirable Risk: Total Cholesterol < 200 mg/100ml, LDL Cholesterol < 130 mg/100ml (b) Borderline Risk: Total Cholesterol 200-239 mg/100ml, LDL Cholesterol 130-159 mg/100ml and (c) High Risk: Total Cholesterol > 240 mg/100ml, LDL Cholesterol > 160 mg/100ml. In most individuals, elevated blood cholesterol constitutes an increased risk of developing coronary artery disease. Scientific evidence has established that lowering definitely elevated blood cholesterol (specifically LDL) will reduce the risk of heart attacks due to coronary heart disease (CHD). Elevated levels of total cholesterol and low-density lipoprotein cholesterol (LDL-C) are associated with increased risk as are low levels of high-density lipoprotein cholesterol (HDL-C). Elevated LDL levels may be decreased by several factors, including diet and decreasing total fat in diet. It is reported that the increase in LDL is found in hyper-lipoproteinaemia in the range of (300 to 600mg/100ml). It is reported that LDL is increased in autosomal disease as compared to HDL and there is greater turn over of VLDL to LDL [4]. All the lipoprotein fractions are increased in diabetes [5]. It is reported that in hypothyroidism LDL and HDL are increased with the increase of cholesterol [6]. In obstructive liver diseases, the increase of serum cholesterol is associated with the presence of β-Lipoproteins [7].

The decrease in lipoprotein fractions is observed in a β-lipoproteinaemia, acanthocytes, mal absorption, CNS symptoms and in these conditions the serum cholesterol level reaches to (22mg/100ml) [8]. Brown and Goldstein [9] measured LDL and HDL levels, which provide high correlation with risk of atherosclerosis and therefore reduce the need for a lipid panel. The administration of drugs such as thiazide diuretics, beta-blockers, estrogens, glucocorticoids and tamoxifen may raise the triglyceride level. Farmer and Gotto [10] determined the lipid profile and hepatic panel testing reimbursed for patients with severe psoriasis, which has not responded to conventional therapy. The retinoid exterminate has been prescribed for those who have developed hyper-lipidaemia or hepatic toxicity. Specific examples include erythrodermia and generalized pustuler type and psoriasis associated with arthritis. The patients with homozygous hypercholesterolemia have acetyl-LDL receptors in place of LDL receptors [11].

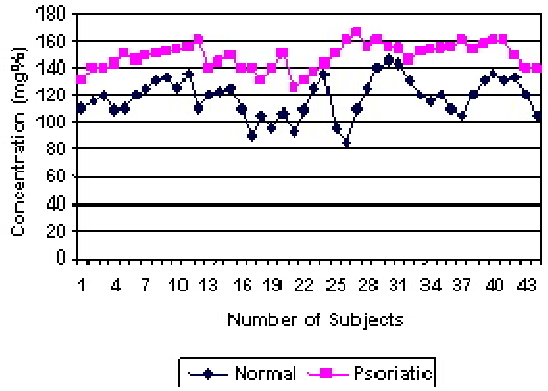

Figure 1. Estimation of Serum low Density Liprotein Cholesterol (LDLC) from Normal and Posiratic Male Subjects

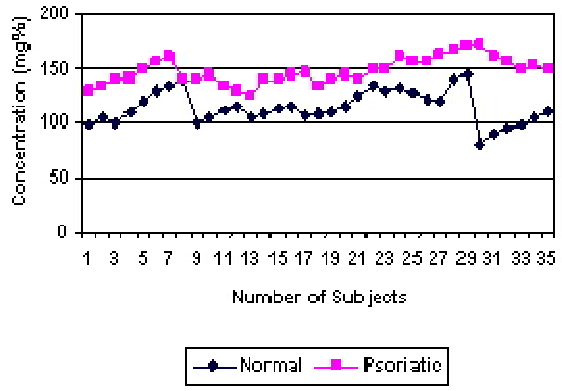

Figure 2. Estimation of Serum Low Density Piproten Cholesterol (L.D.L.C from Normal and Posiratic Female Subjects

Table–1 Low density lipoprotein cholesterol (L.D.L.C) concentration in serum of normal and psoriatic male and female subjects.

Parameter	Male		Female	
No. of Samples	Normal 44	Psoriatic 44	Normal 35	Psoriatic 35
Mean/μ= mg/dl	118.0± 4	148.0± 3	114.0± 5	146.0± 3
S.D	14.8	9.8	15.0	11.6
C.V%	12.6%	6.6%	13.3%	8.0%

Average values of serum LDLC level in normal and psoriatic males and females blood samples observed at 95% confidence limit.

Conclusion

It is concluded that the psoriasis adversely affected by taking greasy foods and nucleoproteins. The level of low-density lipoproteins cholesterol increased with association of fat like substances in hyperlipidemea. Increased level of low-density lipoproteins cholesterol LDLC in blood produce coronary heart disease, hepatic toxicity, erythrodermia and pustuler psoriasis in association with arthritis.

References

1. G. Assmann, Lipid Diagnostik Heute, Badden-Germany 29 (1979).
2. A.V. Nichols, Amer. J. Med. 11 (1951) 358.
3. EL. Bierman, Harrison's, Principles of Internal Medicine, 13 (1994) 2058- 2069.
4. D.S. Frederickson, A.M. Gotto and R.I. Levy, in Stanbury et. al., (1972) 493, 545.
5. A. Chait, J. Clin. Path, 26 Suppl. 5 (1973) 68.
6. A. Chait, M. Mancini, A.W. February and B. Lewis, Lancet 1 (1962) 62.
7. D. Seidel, P.A. Laporic and R.H. Furman, J. Clin. Invest. 48 (1969) 1211.
8. E.H. Strisower, G. Adamson and B. Strisower, Amer. J. med. 45 (1968) 488.
9. M.S. Brown and J.L. Goldstein Harrison's Principles of Internal Medicine, 13 (1994) 1106-1116.
10. J.A. Farmer and Jr. A.M. Gotto, A Textbook of Cardiovascular Medicine, (Braunwald E) WB Saunders, Philadelphia 4 (1992) 1125-1160.
11. M.S. Brown and J.L. Goldstein, Analytical. Rev. Biochem. 52 (1983) 223.