

SERUM PROTEIN AND ALBUMIN, LIPID AND CHOLESTEROL CONCENTRATION IN NORMAL ADULT POPULATION OF DISTRICT ABBOTTABAD

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Abstract: Serum Protein and albumin, lipid and cholesterol levels were studied in 200 randomly selected apparently healthy subjects (118 males and 82 females) of different ages. Age range was between 20–70 years. No significant difference was observed in total protein and albumin levels in both sexes of various age groups. Lipid pattern was positively correlated with the age in males however, in females, this pattern was decreased after 50 years age. Cholesterol showed a progressive rise in both sexes between the ages 20–49 years after which begin to fall. Results also showed Lipid and Cholesterol levels were lower in the females compared to age matched males.

Introduction

An adequate amount of protein, albumin, lipid and cholesterol is very important for the people of all ages and sex for their health. Serum protein levels in normal vary from 6.3–8g% and albumin 3.2–5g%.¹⁻³ However, in albuminuria and some other diseases protein and albumin concentrations are effected. Some research workers observed a significant reduction in serum protein and albumin amongst the user of oral contraceptives containing oestrogen alone or both oestrogen-progestogen.⁴

In normal people serum total lipid ranges from 400–800mg% and serum cholesterol levels ranges between 140–280mg%.^{2,5} Lipid and cholesterol pattern may vary in different population due to diet, genetic make up and other environmental factors. Age and sex also influence serum lipid and cholesterol.⁶ The present study is concerned with the assessment of protein and albumin, lipid and cholesterol profile in healthy males and females of various age groups and sex residing in Abbottabad District.

Material and Methods

200 apparently healthy subjects (both sexes) were selected from various organizations of Abbottabad District. Each person was physically examined and informations regarding age, sex, general physical health, dietary history, height and weight were recorded on a proforma. About 5ml fasting whole blood samples were collected from each healthy individual, by disposable

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syringes and serum was separated. Analysis was carried out on the same day. Total protein was determined by Biuret method,⁷ Albumin by Albustrate Kit method,⁸ total lipid by turbidimetric method⁹ and for estimation of cholesterol Boehinger Kit method¹⁰ was used. T-test was applied for determination of significance.

Results

Blood samples of 200 healthy subjects (59% males and 41% females) were tested. The average total protein was $7.38 \pm 0.04\text{gm}\%$ in males and $7.18 \pm 0.16\text{gm}\%$ in females. The average serum albumin was $4.9 \pm 0.13\text{gm}\%$ in males and 4.7 ± 0.06 in females. No significant change was noted in total protein and albumin levels by sex and age groups. Mean serum protein and albumin of subjects by age and sex is shown in Table - 1.

Mean total lipid was $732.6 \pm 65.9\text{mg}\%$ in males and $706 \pm 72.64\text{mg}\%$ in females. Average Serum cholesterol was $211 \pm 17.7\text{mg}\%$ in males and $196.4 \pm 11.22\text{mg}\%$ in females. Concentration of total lipid and cholesterol of healthy males and females of various age groups are given in Table - 2.

Discussion

Serum protein and albumin levels depend on protein intake rather than age.^{3,8} We found slightly higher levels of proteins in males. No significant change was noted with sex and age groups. These values were considered to be normal for this area population. This shows that total protein intake of these people was nearly same as the recommended intake.¹¹ In our study lipid pattern in healthy males of various age groups showing a progressive elevation reaching maximum values in the age group fifty years and above. Similar pattern was observed in females upto age group 40-49 years. However, a progressive rise in the level of serum cholesterol was noticed in both sexes from the age of 20-49 years after which these levels decrease. The present findings are similar to those reported earlier.^{12,13,14} Another important aspect of our study was that the males had slightly increased levels of serum total lipid and cholesterol than females in the all age groups. These results are in agreement with findings of other research workers.^{13,14} In addition to providing baseline data on healthy individuals of various ages and sex, this study also furnishes the necessary foundation for the interpretations and findings in disease states in our population. Dr. Bakey found that 80% patients with severe coronary artery disease had normal cholesterol levels and hence it does not make sense that elevated cholesterol are cause of coronary artery disease.¹⁵ G.V. Mann stated, physicians who have tried diet therapy for high levels of blood cholesterol and coronary heart disease soon found that it did not work and hence diet was just one of several factors involved in the development of heart disease.¹⁶ He found non-dietary factors including heredity, high blood pressure, obesity, smoking, stress (personality type) and lack of exercise also play critical roles in the risk associated with

Table - 1
MEAN SERUM PROTEIN AND ALBUMIN OF SUBJECTS BY AGE AND SEX

Age groups Years	Male Nos.	Mean + S.D.		Females Nos.	Mean + S.D.	
		T. Protein with range G%	Albumin with range G%		T. Protein with range G%	Albumin with range G%
20-29	30	7.4 ± 0.51 (6.4-8.0)	5.0 ± 0.66 (3.6-5.1)	15	7.2 ± 0.71 (6.5-7.6)	4.7 ± 0.69 (3.6-4.8)
30-39	32	7.3 ± 0.66 (6.4-7.9)	5.1 ± 0.64 (4-5.2)	19	7.3 ± 0.79 (7.5-7.8)	4.7 ± 0.66 (3.7-4.9)
40-49	33	7.4 ± 0.64 (6.5-8.0)	4.8 ± 0.61 (3.6-5.2)	22	7.4 ± 0.45 (7.5-7.8)	4.8 ± 0.65 (4.0-4.9)
50-59	18	7.4 ± 0.63 (6.6-8.0)	4.8 ± 0.68 (3.6-5.2)	18	7.0 ± 0.51 (6.6-7.6)	4.6 ± 0.43 (3.6-4.8)
60 +	5	7.4 ± 0.63 (6.6-8.0)	4.8 ± 0.68 (3.6-5.2)	8	7.0 ± 0.5 (6.5-7.6)	4.7 ± 0.65 (3.7-4.9)

Table - 2
TOTAL LIPID AND CHOLESTROL OF SUBJECTS BY AGE AND SEX

Age group Years	Male Nos.	Mean + S.D.		Female Nos.	Mean + S.D.	
		Total lipid mg%	Cholestrol mg%		Total lipid mg%	Cholesterol mg%
20-29	30	630 ± 35.1	184 ± 08.2	15	584 ± 27.2	178 ± 05.1
30-39	32	678 ± 43.1	211 ± 17.9	19	663 ± 33.6	190 ± 11.7
40-49	33	784 ± 53.1	240 ± 18.1	22	779 ± 35.1	210 ± 12.5
50-59	18	785 ± 40.3	211 ± 19.1	18	752 ± 30.7	203 ± 12.1
60 +	5	786 ± 40.2	209 ± 19.2	8	753 ± 30.8	201 ± 12.2

susceptibility to heart disease. During this study we had also an opportunity to educate people on a balanced diet and how to improve their health within limited resources.

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CAN YOU GET YOUR TONGUE ROUND THESE?

People are often caught out by not knowing the meaning of words, but what about saying words? Can you manage these tongue-twisters? Repeat each one three times rapidly. You can make up your own method of scoring.

The seething sea ceaseth and thus sufficeth us.

Fanny Finch fried five floundering fish for Francis's father.

Six slim slick slender saplings.

A bloke's back brake block broke.

The sixth sheikh's sixth sheep's sick.

Are you copperbottoming 'em, my man? No'm, I'm aluminluming 'em, mum.

Amidst the mists and coldest frosts,
With barest wrists and stoutest boasts,
He thrusts his fists against the posts
And still insists he sees the ghosts.

The twine to three tree twigs.

Double bubble gum bubbles double.