



## HIGH LEVEL OF SERUM CHOLESTEROL AS ONE OF THE RISK FACTORS FOR CARDIOVASCULAR DISEASES

V. Lalova\*, V. Alvadjeva, M. Kisimova

Department "Nurse and Midwives Cares", Medical University of Plovdiv, Bulgaria

### ABSTRACT

**Introduction.** In our country have been carried out detailed studies of cholesterol and lipoproteins as crucial and essential factors for cardiovascular diseases. To verify the hypothesis, that the high percent of lipoproteins is associated mainly with diet and is essential for the occurrence of cardiovascular diseases.

**Purpose.** We will identify and analyze the evidence for the importance of high level of serum cholesterol as a major risk factor for the Bulgarian population.

**Materials and methods.** Have been conducted a prospective study, which covered 100 people by the medical staff of the hospital at the age of 25 to 65 years. The study had covered the history /incl. questionnaire model / medical examination, blood counts and lipoprotein profile.

**Results.** Incidence rates /risk/ in the exposed population, compared to the rate of disease among unexposed persons are called relative risk /R/ and is used to measure the strength of the relationship between disease and faktor.

**Conclusion.** Investigate the link of high level of cholesterol, confirmed the position of the complex relationships between risk factors and unhealthy food.

**Key words:** cholesterol, lipoproteins, diet, cardiovascular diseases, risk factors, promotion, prevention, relative risk

### INTRODUCTION

In our country have been carried out detailed studies of cholesterol and lipoproteins as crucial and essential factors for cardiovascular diseases.

A. Panev /1984/ established a serum cholesterol above 260 mg / dL in 15.2% of 7136 men at age of 40-60 years old.

A. K. Kiryakov /1987/ has done detailed research in similar arguments. The analysis about lipoproteins have been performed on 3372 people from the general population in Plovdiv. There had a frequency 8.1 %, while in patients with CHD, the figure is 91.5% / at 49.2% - a hidden form/. These data points show high level of atherogenic significance to forms of dyslipoproteinemia.

hidden form/. These data points show high level of atherogenic significance to forms of dyslipoproteinemia.

Ch. Merdzhanov, I. Tomov and D. Dochev /1998/ survey carried serum cholesterol in 6225 people, including 2185 men and 4040 women / 10 - 69 years / under average age 39.8 + / - 0.32 years and 38.0 + / - 0.22 years. Average serum cholesterol for the entire study population was : males - 5.00 + / - 0.03 and for women - 4.93 + / - 0.02 mmol / l.

### Objectives of the research:

To verify the hypothesis, that the high percent of lipoproteins is associated mainly with diet and is essential for the occurrence of cardiovascular diseases.

### Tasks of the research:

- examination to the serum cholesterol of about 100 people aged 25-65 years, practically healthy;

\*Correspondence to: V. Lalova, Medical University of Plovdiv, Bulgaria, Department "Nurse and midwives cares" Bul. Vasil Aprilov 15-A, Plovdiv 4002, suzy\_lalova@yahoo.com, 0885 746696; 0893 527971;

- elaboration of a model, which is like questionnaire for eating behavior of the respondents;

### Analysis and evaluation of the relationship between eating behavior, dyslipoproteinemia and the occurrence of cardiovascular diseases.

We will identify and analyze the evidence for the importance of the hypercholesterolemia as one of the major risk factors for the Bulgarian population. The results of the study will help to refine the parameters of the promotion and prevention of cardiovascular diseases. They will be used to develop programs about healthy-food behavior. We will create theoretical prevention to conduct specific activities /medical, social and organizational / for the contractors of all hospital cares.

High level of serum cholesterol is associated mainly with irrational behavior and unhealthy food, which is high-grade risk factor for the occurrence of cardiovascular disease among the population in our country.

The study will be conducted in University Hospital " St. George " - Plovdiv.

Medical diagnostic tests will be carried out in sectors of the clinical laboratory of the hospital. Medical examinations will be conducted by medical teams.

### Methodology of the study and follow-up phase.

The study took place over 1 year and we have started from 01.03.2013 and have finished on 01.03.2013. Have been conducted a prospective study, which covered 100 people by the medical staff of the hospital at the age of 25 to 65 years. They have been divided into two groups: exposed / high cholesterol - 12 people / and unexposed / normal levels of cholesterol - 88 people /. The study had covered the history / incl. questions on the questionnaire model / medical examination and blood counts and lipoprotein profile. Before the blood samples to be taken, examined people should not have been taken food and alcohol since 12-14 hours. We have used 5 ml of venous blood, followed by centrifugation, and the results have been reported to the "ELISA" method from 2 to 6 hours.

Studied : LDL - low density lipoproteins - 140 mg / dL; HDL - high density lipoproteins - over 140 mg / dL; Total cholesterol - 200 mg / dL  
Analyzing data.

The results can be presented in the form of the following **table**:

Diseased Healthy Total exposure	Unhealthy	Healthy	Total
Exposed F	a	b	a + b
Unexposed F1	c	d	c + d
Total	a + c	b + d	a + c + b + d

Incidence rates /risk/ in the exposed population, compared to the rate of disease among unexposed persons are called relative risk /R/ and it is used to measure the strength of the relationship between disease and faktor.

The unknown relative risk will be calculated as follows:

$$P0 = \frac{a}{c + d} \quad P1 = \frac{a}{a + b}$$

where P1 and P0 are the morbidity / risks, probabilities / groups F and F1.

Unknown relative risk /risk relation in populations/ is calculated as follows:

$$R.R = \frac{P1}{P0}$$

The relative risk (R) can vary from 0 to a large numbers. As for R, their relationship is stronger and has a greater chance to reflect for other reasons. If R is less than 1, this means a low incidence among the exposed people or the factor has a protective result.

If  $R \sim 1$  it is always a question of whether the result is not due to some hidden or uncontrolled source of systematic error. The study have used computer programs : Excel and Epi Info.

Risk factors are: effects of overweight; intracerebral and subarachnoid hemorrhage; frequent consumption of alcohol drinks; unsatisfactory physical activities; increased consumption of animal fats.

## **CONCLUSIONS**

Important medical and social significance of hypercholesterolemia /HHS/ in Bulgaria arises from the presence of multiple combinations of this risk factors. Investigate the link of high level of cholesterol, confirmed the position of the complex relationships between risk factors and unhealthy food. In purely practical terms, the study will reduce HHS, by removing or reducing the effect of other risk factors - immobilization, overfeeding, etc.