

DYSLIPIDEMIA- CARDIOMETABOLIC RISK FACTOR. EPIDEMIOLOGICAL STUDY IN A RURAL AREA FROM BIHOR

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Abstract: Dyslipidemia is one of the risk factors of cardiometabolic diseases. The purpose of this work is to identify both the cases of dyslipidemia as well as to study the influence of a family medical history (AHC) of dyslipidemia on the occurrence of other metabolic diseases. The study group is the 2289 adults residing in a rural area of Bihor County. We have made an epidemiological study using the application SPSS (Statistical Package for the Social Science). We observed the prevalence of dyslipidemia taking into consideration the family medical history and we calculated the risk of dyslipidemia. In conclusion, the risk of dyslipidemia and mixed dyslipidemia in the population with family medical history in dyslipidemia is 1.3, respectively 1.2 times higher than in the population without family medical history, the risk is higher for women than for men. Identification of cardiometabolic risk factors is a first step in prevention of these diseases.

INTRODUCTION

Dyslipidemia is an important risk factor for atherosclerosis, coronary heart disease, acute coronary events and metabolic syndrome.(1)(2) The risk of developing ischemic heart disease and metabolic syndrome is increased in case of increased levels of total cholesterol and low density lipoprotein accompanied by low levels of high density lipoproteins (3). Studies in the specialized literature in the epidemiological cardiometabolic field acknowledge the epidemic nature of cardiovascular and metabolic disease (4), the cardiometabolic risk factors are prevalent and measurable, particularly dyslipidemia and mixed dyslipidemia.(5)

PURPOSE

The purpose of this work is to develop the preventive medicine by conducting an epidemiological study in order to identify individuals with dyslipidemia as well as by analyzing the prevalence of dyslipidemia and the influence of the family medical history of dyslipidemia on the occurrence of other metabolic diseases, at the level of the studied group.

MATERIALS AND METHODS

Group study population is represented by a number of 3 768 people, of which 2 356 adults, population residing in a rural area in Bihor – Curtușeni commune, during January 2011- April 2014. Our study group was formed by 2 289 adults, the difference to the total adult population (67) is represented by adults who went to work abroad. In this descriptive observational study, there have responded to the invitation 1 101 men and 1 288 women. There have been collected biological samples (blood) from the persons participating in the study, in order to check the lipid levels: serum cholesterol total, low-density lipoprotein-cholesterol (LDL), high-density lipoprotein-cholesterol (HDL), triglycerides and they were questioned about medical family history (MFH) related to dyslipidemia. The observed parameters of study: distribution by age and gender of casuistry, studying the influence of a family medical history of dyslipidemia on people studied and risk calculation of

dyslipidemia among the general population, both apparently healthy persons or without family medical history of dyslipidemia as well as in patients with family medical history of dyslipidemia. For the calculation of dyslipidemia we considered deviations from normal values of a single lipid parameter and for mixed dyslipidemia at least two parameters. The statistical analysis was done by using the EPIINFO, version 6.0, a program of the Center of Disease Control and Prevention – CDC in Atlanta and World Health Organization, adapted for medical statistics processing and SPSS 19. We calculated the average parameters, frequency ranges, standard deviations, tests of statistical significance by Student method (t test) and χ^2 . We used in our study the concepts of relative risk (RR) and attributable risk (AR).

RESULTS

a. Distribution by age

Table no. 1. Distribution of cases by age

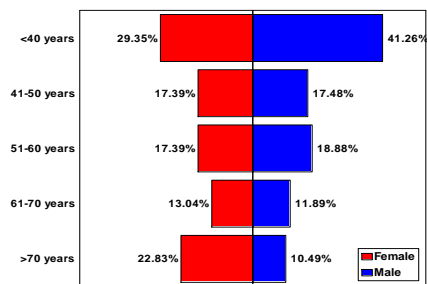
Age	Total		Female		Male	
	No.	%	No.	%	No.	%
<40 years	791	34.56	378	29.35	413	41.26
41-50 years	399	17.43	224	17.39	175	17.48
51-60 years	413	18.04	224	17.39	189	18.88
61-70 years	287	12.54	168	13.04	119	11.89
>70 years	399	17.43	294	22.83	105	10.49
Average age	50.24±7.28		52.73±8.12		47.03±7.43	

Over 50% of the subjects were aged under 50 years (51.99%), most under 40 years old (34.56%). Distribution by age group shows significant differences between women and men (threshold of statistical significance, $p = 0.011$), the average age was higher in female (vs. 52.73 years versus 47.03 years).

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CLINICAL ASPECTS

Figure no. 1. Distribution of cases by gender and age

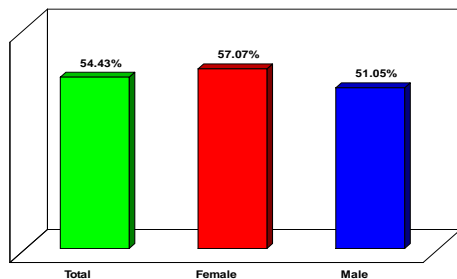


• b. Prevalence of dyslipidemia

Table no. 2. Prevalence of dyslipidemia

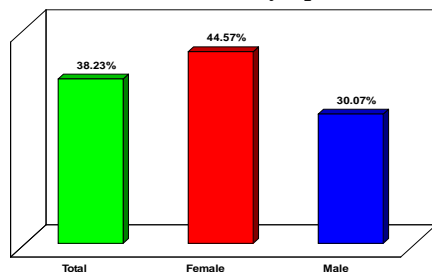
	Total		Female		Male	
	No.	%	No.	%	No.	%
Without dyslipidemia	1043	45.57	553	42.93	490	48.95
With dyslipidemia	1246	54.43	735	57.07	511	51.05
Mixt Dyslipidemia	875	38.23	574	44.57	301	30.07

Figure no. 2. Prevalence of dyslipidemia



The prevalence of dyslipidemia was 54.43%, slightly higher in females than in males 57.07% vs. 51.05% ($p = 0.228$). To obtain the final result, we took into account any changes of the lipid profile (increased total serum cholesterol, LDL-cholesterol, triglycerides, decreased HDL-cholesterol, and any combination of these parameters). Mixed dyslipidemia was present in 38.23% of the population, the prevalence was significantly higher in women (44.57% vs. 30.07%) ($p = 0.002$). We carefully observed the family medical history related to changes of the profile of high concentration of lipid in the blood in different categories.

Figure no. 3. Prevalence of mixed dyslipidemia

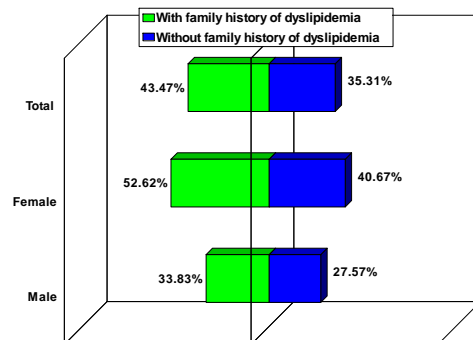


We also studied a family medical history, masculine side, feminine side, or both.

Table no. 3. Distribution of cases by family history

Dyslipidemia	819	35.78	420	32.61	399	39.86
Masculine side	191	8.34	105	8.15	125	12.49
Feminine side	311	13.59	138	10.71	125	12.49
Masculine+ feminine	317	13.85	177	13.74	149	14.89
Without family medical history	511	22.32	322	25.00	189	18.88

Figure no. 4. Prevalence of mixed dyslipidemia depending upon the existence of family history



Dyslipidemia with family medical history had a rate of 35.78%, slightly higher percentage in men (39.86% vs. 32.61%) ($p = 0.139$).

- Influence of family medical history of dyslipidemia

Table no. 4. Prevalence of dyslipidemia depending on whether there is a family medical history of dyslipidemia

	Total		Female		Male	
	No.	%	No.	%	No.	%
With family medical history of dyslipidemia	517	63.13	291	69.29	226	56.64
Without family medical history of dyslipidemia	729	49.59	444	51.15	285	47.34

In subjects with a family history of dyslipidemia, dyslipidemia prevalence was significantly higher than in subjects without such a history (63.13% vs. 49.59%) ($p = 0.007$), both in women (69.29% vs. 51.15%) ($p < 0.001$) and males (56.64% vs. 47.34%) ($p = 0.056$).

The risk of dyslipidemia in people with a family history of dyslipidemia is 1.3 times higher than in the population without a family history ($RR = 1.273$, $RA = 0.135$), the risk is higher for women than for men ($RR = 1.355$, $RA = 0.181$, $RR = 1.196$, respectively, $RA = 0.093$).

Table no. 5. Prevalence of mixed dyslipidemia depending whether there is a family history of dyslipidemia

	Total		Female		Male	
	No.	%	No.	%	No.	%
With family medical history of dyslipidemia	356	43.47	221	52.62	135	33.83
Without family medical history of dyslipidemia	519	35.31	353	40.67	166	27.57

In subjects with a family history of dyslipidemia, prevalence of mixed dyslipidemia was slightly higher than in subjects without such a history (43.47% vs. 35.47%) ($p = 0.057$). In women, the difference was significant (52.62% vs. 40.67%) ($p = 0.015$) whereas in men the difference was not significant (33.83% vs. 27.57%) ($p = 0.161$).

Mixed dyslipidemia risk for the population with a family history of dyslipidemia is 1.2 times higher than for the population without a family history ($RR = 1.231$, $RA = 0.082$), the risk is higher for women than for men ($RR = 1.294$, $RA = 0.120$, $RR = 1.227$, respectively, $RA = 0.063$).

DISCUSSIONS

In the studied population, the women prevailed (56.27%), the ratio of women / men being 1.3: 1.

Over 50% of the subjects were aged under 50 years (51.99%), most under 40 years old (34.56%) and the average age for women was significantly higher than that of men (52.73

vs. 47.03 years old). Therefore, we are dealing with a relatively young population (the highest percentage was recorded in the age group under 40 years, and the lowest percentage in the group 61-70 years), compared with the average of Bihor County, where the percentage of young people under 40 years is 28.18% (according to data from Bihor county Statistics, following last census).(6) Although women predominate as percentage in number, they have higher average age than men.

According to the results of PREDATORR study (Romanian National Study on the Prevalence of Diabetes, Prediabetes, Overweight and Obesity, Dyslipidemia, Hyperuricemia and Chronic Kidney Disease) (7) in Romania, dyslipidemia prevalence is much higher, of 81%, compared to our study where the prevalence is of 54.43%. Dyslipidemia indicate risk for type 2 diabetes, atherosclerosis, metabolic syndrome (8)(9).

Prevalence of dyslipidemia in women with a family history of dyslipidemia was significantly higher than in men (69.29% vs. 56.64%) ($p = 0.006$), and slightly higher in women without a family history of dyslipidemia (51.15% vs. 47, 34%) ($p = 0.445$). The prevalence of mixed dyslipidemia in women was significantly higher than in men both in the population with a family history of dyslipidemia (52.62% vs. 33.83%) ($p < 0.001$) and in the population without a family history of dyslipidemia (40.67% vs. 27.57%) ($p = 0.003$).

Our study confirms the results of other studies in the specialized literature regarding the heredity of dyslipidemia, observing higher values in patients with a family history of dyslipidemia.(2) However, we cannot precisely state whether it is the hereditary factor or the traditional food habit perpetuated in the family, or both.(10)

CONCLUSIONS

The prevalence of dyslipidemia was of 54.43%, whereas the mixed dyslipidemia was present at 38.23% of the population.

The risk of dyslipidemia in people with a family medical history of dyslipidemia is 1.3 times higher than in the population without a family medical history, the risk is higher for women than for men.

The risk of mixed dyslipidemia in the population with a family history of dyslipidemia is 1.2 times higher than in the population without a family medical history, the risk is higher for women than for men.

Prevention of cardiometabolic diseases addresses both to patients with metabolic and cardiovascular symptoms as well as to persons with cardiometabolic risk. Identification of cardiometabolic risk factors is the first step in prevention of these diseases. If we can not intervene on the genetic factor, however through treatment and proper diet, by giving up the traditional way of eating and unhealthy habits, we can hope to get cardiometabolic risk mitigation.(11)

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