CARDIOVASCULAR DISEASES AND THEIR RELATIONSHIP WITH NUTRITIONAL STATUS

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Summary

Cardiovascular diseases present a major health problem worldwide, being the main cause of death. Among the main risk factors of cardiovascular disease is irrational nutrition. In our retrospective study we established the relations between cardiovascular diseases and nutritional status. Our results confirm the medical literature data about nutritional status like a risk factor in incidence of cardiovascular diseases.

Rezumat
Maladiile cardiovasculare și relația lor cu statutul nutrițional

Bolile cardiovasculare prezintă o problemă de sănătate majoră în întreaga lume, fiind cauză principală de deces.Printre factorii de risc principali ai bolilor cardiovasculare este nutriția nerațională.În studiul retrospectiv derulat am stabilit relațiile între maladiile cardiovasculare și statutul nutrițional. Rezultatele obținute se încadrează în datele de literatură medicală, care subliniază că statutul nutrițional reprezintă factorul de risc major la pacienții cu boli cardiovasculare.

News Theme

Cardiovascular diseases present a major health problem worldwide, being the main cause of death, hospitalization and morbidity in the adult population and old age [8,9]. According to the Scientific and Practical Center for Public Health and Health Management, the total prevalence of cardiovascular disease in the Republic of Moldova in 2011 amounted to 1 651.3/10 000, rising compared to 2010-1 565.9/10 000 inhabitants [1,6]. In Moldova persists at high levels and the overall incidence of cardiovascular diseases accounted for 207.2 per 10 000 population in 2011. Of the patients with permanent work incapacity in Republic of Moldova, people with cardiovascular diseases are the most numerous, representing 20.3/100 000 population. It is alarming that 57,4% of deaths from cardiovascular diseases in 26,5% were people at working age [1]. Besides cardiovascular disability people of working age is 19 to 20% of all people with disabilities by disease.

While in the countries of Western and Central Europe, U.S.A the mortality from cardiovascular disease has seen in the last 20 years a decreasing trend, reaching a 3-5/1000 inhabitants in 2010 [9]. In Moldova, however, reveals a trend of deterioration in this indicator - in 2011 the noted level of 633.4/100 000 inhabitants [1].

Nutrition plays an important role in promoting and maintaining the health of the lifelong, unsanogenous diet plays an important role in the development of many chronic diseases that incidence and prevalence alarming increase in current civilization, such as obesity, diabetes type 2, cardiovascular diseases, cancer, osteoporosis and dental disease [7]. Estimates that irrational nutrition condition about a third of all deaths from cardiovascular disease [10]. Varied and balanced diet, supplemented with a proper diet and physical activity are essential prerequisites for good health and reduce risk of chronic disease. In addition to these shows promoting healthy nutrition, fortification of complementary feeding for improving long-term health. Another important nutritional risk factor is over weight and obesity, which makes cardiovascular disease [2,3,4,5]. About 50% of adults are overweight in Republic of Moldova, including 15% are obese. The share of obese people is higher in urban areas (16.3%) than rural areas (14,7%) and among women (17,1%) than men (13,3%). Obesity increases with age: from 1% in the age group

18-24 years to 25% in the 45-65 year age group, and then decreases. Forty-one percent of people who suffer from cardiovascular disease are overweight and another 31% are obese [6].

The objectives of the work

The aim of the study was to estimate the relationship between nutritional status and cardiovascular diseases. Assessing the potential for adaptation and SCORE index of persons included in the study.

Materials and methods of research

The study was a retrospective and comprised of consecutive people consulted during January-March 2013 IMSP AMT CCD Ciocana, Chisinau. The survey sample were involved 41 subjects, which were subsequently divided into group of sick people - 25 and group of healthy subjects - 16 subjects. In achieving the study were taken the rules of medical ethics of the medical institution. Each subject performed a questionnaire that was composed of several elements: information about the identity of the person (age, gender), somatic indices (height, weight) physiometric indices (blood pressure, heart contractions), biochemical indices (cholesterol) and skills harmful (smoker/nonsmoker). Statistical interpretation of the results was performed using Windows Excel 98.

Discussions and results

This study aimed to analyze the situation and trends in cardiovascular disease (dyslipidemia, hypertension, etc..) In relation to nutrition as a determinant of their major, to develop recommendations to reduce the impact of unbalanced nutrition on the burden of cardiovascular disease.

The study included 41 people who addressed the department's advisory medical institution. In total 39% were evaluated in healthy individuals (without cardiovascular diagnosis), and 61% of people have been diagnosed with hypertension. Average age was 53,1 years of healthy individuals, respectively individuals with a diagnosis of hypertension was 60,5 years.

In the sample study women predominate at a rate of 68,3%, compared with men – 31,7%. Thus, the group of sick women are affected primarily - 20 cases (80%).
Nutritional status is a condition of the structure, functions and adaptive reserves of the body, formed under the influence of nutrition and metabolic features. An objective study of nutritional status allow the objective alimentation and early detection of disturbances in health and disease conditional on food.Assessment of nutritional status is one of the first and main methods of medical monitoring on food of different categories of people. Nutritional status can be positioned at various intervals of appreciation - from best to incompatible with life.

Study of nutritional status is performed by a number of indicators: subjective (questionnaires, surveys – passport data, gender, age, profession, harmful habits, working conditions, living conditions, food character, etc..) and objects (indexes somatoscopic, somatic , physiometric, clinical, biochemical).

The study involves the use of nutritional status body mass index (index Quetelet), which is the ratio of actual body weight (kg) than the body height (m) square.

Data was collected on weight and height of people in the study sample. The average body mass index from 31,8 kg/m^2 was to sick persons and healthy persons – 27,0 kg/m^2 (Fig. 1). According to WHO criteria is considered that normal body mass index is within the limits of 18,5 to 24,9 kg/m^2. Based on body mass index conclude that nutritional status in the group of sick, is characterized by an overweight (obesity grade II) which is directly proportional to the incidence of cardiovascular diseases.
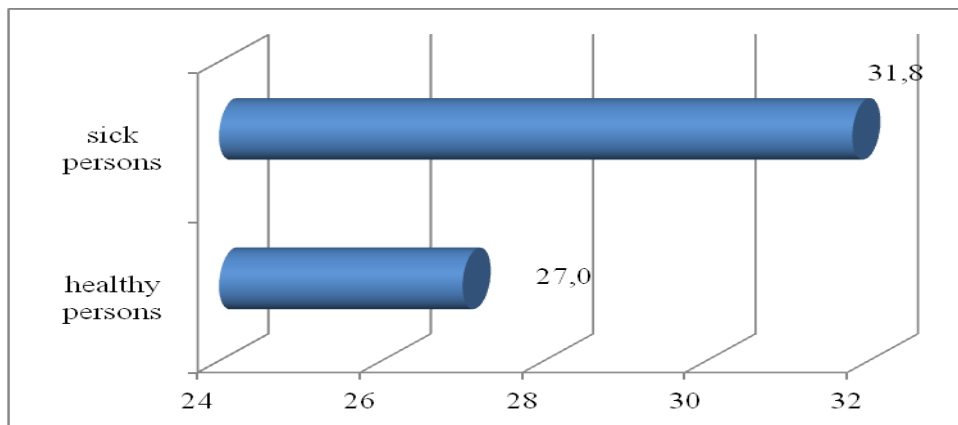
Fig.1 Average value of mass index (kg/m^2) in the group of healthy and sick.

Regarding harmful habits (smokers / non-smokers), we note that in all of the research sample only 4,8% were certified as heavy smokers, male/female ratio was 1:1.

Biochemical indices reveals the following picture: the group of healthy average cholesterol was 5,4 mmol / l, and in the group of sick – 5,7 mmol / l (normal value of cholesterol being ≤ 5,2 mmol / l). Index sick cholesterol group has higher values compared with healthy people.

Among indices were analyzed following parameters physiometric - blood pressure (systolic blood pressure, diastolic blood pressure) and heart frequency of contractions. Systolic value reached average values of 120 mmHg and diastolic blood pressure - 80 mmHg for healthy individuals versus diseased individuals whose systolic blood pressure was 137,2 mmHg and diastolic blood pressure – 82,6 mmHg. Analysis of the results allows to see that the average values of blood pressure are higher in the group of sick. The mean frequency of cardiac contractions in ill persons registered 72,8 beats per minute.

It is known that diseases do not occur spontaneously due to insufficient or food surplus or other environmental factors external action. If premorbid functional capabilities of body states are still not low, but the account maintained at the appropriate level regulating system application and adaptation. Adaptive capacities of the organism can be apreciated by determining the potential of adaptation of circulatory system [11]:

$$PA = 0,011 (FHC) + 0,014 (SBP) + 0,008 (DBP) + 0,009 (BW) − 0,009 (H) + 0,014 (A) − 0,27,$$

where:

PA - potential for adaptation of the circulatory system (unit);

FHC - frequency of heart contractions (beats / min);

SBP and DBP–systolic and diastolic blood pressure (mm.col.Hg.);

H - height (cm);

BW - body weight (kg);

A - age (years).

The average value of the potential for adaptation in healthy individuals was 3,1. The health of these people is characterized by strained coping mechanisms, the blood circulation is increased. These people need to reduce the negative impact of external environmental factors and increase the body's potential self. As for the sick, we show that the adaptive potential of the mean value of 3,5, which characterizes these individuals, the reduced functional capacity and limited coping mechanisms are exhausted. When they frequently manifest some signs of disease, they should require prophylaxis and treatment.

Another index is quite important and informative SCORE system, which is a European model of database provided SCORE46 project. SCORE charts are available for European countries with high risk and low risk. They estimated the risk of death from cardiovascular (not

just coronary) for a period of 10 years, depending on age, sex, systolic blood pressure value, serum cholesterol and smoking status, and adaptation graphs for each country provided be known national mortality statistics and estimates of the prevalence of major cardiovascular risk factors. The Republic of Moldova will use the SCORE chart for European countries with high risk.

The average score for healthy individuals was 1,4 (ranging within 0-4) which can be interpreted as moderate risk ≥ 1% and <5%. While the average SCORE of patients is 3,3 (ranging within 1-19), as were interpreted as moderate risk.

Conclusion

The obtained results allow to conclude that women are mostly affected by cardiovascular diseases in 80% of cases. Nutritional status according to body mass index in the group of sick, is characterized by an overweight (obesity grade II) which is directly proportional to the incidence of cardiovascular diseases.

Index sick cholesterol group has higher values compared to healthy people. Also, the mean blood pressure values are higher in the group of sick.

Potential adjustment of the mean value of sick 3,5, which characterizes these individuals through reduced functional capacity and limited coping mechanisms are exhausted. When they frequently manifest some signs of disease, they require prophylaxis and treatment. Value represents the average score is 3,3 and moderate risk patients.

In order to reduce cardiovascular disease morbidity is recommended rational and balanced nutrition of patients, which allows reduction of body mass index.

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