THE ROLE OF DIET IN THE PREVENTION OF CARDIOVASCULAR DISEASE

Rahotă Daniela, Holt Gineta

University of Oradea, Faculty of Medicine and Pharmacy, 1 Decembrie Square no 10, city of Oradea, Romania, e-mail: dr.rahota@gmail.com, ginetta_23ro@yahoo.com

Abstract

In the last 20 years have changed strategies in coronary patient approach, but without abandoning the basic principles. Major objective of this study also concerns is that we were allowed counseling patients regarding lifestyle - monitoring of dieta results in 250 patient having coronary heart disease. The results of the study reveal a fast improvement of the simptomatology of this patology because of effective combination of medical treatment and diet.

Keywords: cardiovascular risk factors, counselling, diet

INTRODUCTION

For the past 20 years the strategies addressing patient's coronary artery diseases have changed, yet without sacrificing basic principles(Wong N.D., Gardin J.M., 2005). Cardiovascular diseases are in most countries of the world the main cause of morbidity and mortality and among them the top ranked is the ischemic cardiomyopathy(Krauss R.M., 2008). High cardiovascular related morbidity and mortality rates in Romania contrast with the results obtained in this field by other countries more developed from social and economical point where the application of medical screening, assessment and prevention programmes targeting the cardiovascular risk factors have reduced mortality due to cardiovascular disease by 50%(Zdrenghea D., Văidean G., Pop D., 2003). Modernization and Westernization trend guide large segments of the society (especially youth) to unhealthy patterns in terms of nutrition habits and general behaviour which are the major risk factors for health. This set of cardiovascular risk factors may be contained and corrected both through counselling and by means of specific processes and programmes designed to combat unhealthy eating habits and behaviours(Mihail A., 2002). Through the overwhelming negative role the cardiovascular risk factors play in the development ischemic cardiomyopathy, they are always current topics of great concern (Graham I., 2007).

MATERIAL AND METHODS

Our study carried out the monitoring of the diet in case of 250 patients suffering from ischemic heart disease.

The nature of pharmacological treatment was consistent with the clinical form of the disease, but the medication classes were the same, i.e. nitrates, beta blockers, ACE inhibitors, aspirin, anticalcic drugs, lipid-lowering drugs, anticoagulants. Each patient from the pool of patients surveyed was **interviewed** directly on his/her social status, and economic resources through we have monitored his/her nutrition habits, quality, quantity and preference in terms of favourite food during a meal. We enclose in our analysis the patient's family milieu and entourage, patient's level of education and culture, his/her profession and the way s/he cooperated with sanitary environment. We set a **personal record** with all the data afore mentioned we had hand in mind when we sort the patient by his/her kind of lifestyle, while taking account of the following factors: diagnosis and clinical form of coronary artery disease, clinical stage and patient age, associated diseases, endocrine disorders related to menopause, number of associated risk factors, the clinical course of the patient.

RESULTS AND DISCUSSION

Dyslipidemia was the most commonly encountered risk factor. It was found in 219 patients (87.6%), and it is common in women (91.6% vs. 84.0%) ($p>0.05$). Obesity was present in 165 patients (66%), smoking in 145 patients (58.0%), hypertension in 129 patients (51.6%), and hyperglycaemia in 119 patients (47.6%) (figure 1).

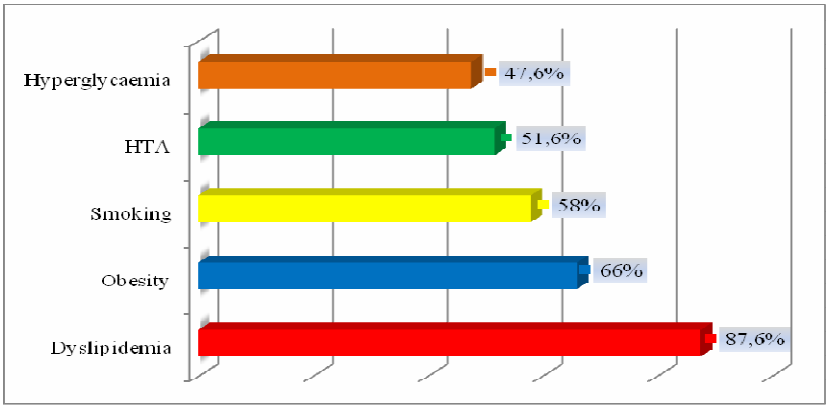

Fig 1. Distribution of risk factors

The **major objective** of the study is that we were allowed to provide counselling services to the patients surveyed on their lifestyle. Decreasing cardiovascular risk factors means the decrease of aggressive action on the myocardium with clinical improvement and recovery of the functions affected by positive remodeling of myocardium or even the restitution of the vascular occlusive processes. These actions are achievable in the long term in two ways: lifestyle changes and pharmacological treatment. The target of our intervention was to bring these coronary patients to the following indicators and the objective was individualized for each patient:

- ⇨ Total cholesterol < 190mg/dl;
- ⇨ LDL- cholesterol < 100mg/dl;
- ⇨ HDL- cholesterol > 45 mg/dl;
- ⇨ Triglycerides < 150mg/dl;
- ⇨ Total cholesterol / HDL - cholesterol ratio < 5.

Within the antilipaemic agents diet we implemented we considered a set of basic principles concerning the composition of the diet aiming at: increasing mono and polyunsaturated fatty acids, decreasing the saturated fatty acids and *trans* fats, decreasing the food products high in cholesterol, decreasing carbohydrates, decreasing the energy content of food ratio. Any diet from which fats are **completely excluded**, in particular those that contain essential fatty acids (omega 6 and omega 9, in ratios of up to 4:1) is dangerous to health (Apetrei E., 2002).

Fat quality in terms of effects on health depends on the **source of food** i.e. vegetable fat, animal fats, artificial fats, fat substitutes. The most important feature is the quality of fats into **fatty acids profile**. Composition of fats in saturated, mono-unsaturated and polyunsaturated fatty acids and the ratio between them provide them both the physical properties (i.e. solid or liquid state at room temperature), chemical properties (resistance to oxidation, rancidity induced by light, heat, oxygen in the air, smoke point SP), physiological and organoleptic characteristics (content in essential fatty acids and the ratio between them).Functionally, natural fats (macronutrients) nourish the body with information besides energy (Durrington P.N., 2007).

Quality of information transmitted to human metabolism by dietary fat is the most important feature and has the strongest significance in maintaining health or causing disease (Hu F.B., Willett W., 2002). Damaging the structure of food fats by cooking processes (roasting at

temperatures higher than 180°C) or by industrial hydrogenation or interesterification (i.e. margarine) processes determines a profound modification at the level of their information, causing serious damage to human health. This causes the following negative effects: compromise of cell signalling and nutrients and metabolites exchange, blocking of metabolic pathways. From a pathological view, they are translated into systemic proinflammatory state, which will lead in turn to the occurrence of diseases like obesity, dyslipidemia, cardiovascular disease (myocardial infarction), neurological and neurodegenerative diseases (cerebrovascular accident, stroke, major depression disorders, Parkinson, Alzheimer), cancer, early aging (Gaziano J.M., et al.,2005, Pearson T.A., 1998). It is well known that the human body contains structural fats with high levels of organ and cell specificity. Thus the brain is one of the fattest organ of the human body containing special natural and complex fats (omega 3 essential fatty acids i.e. EPA, DHA) which cannot be found in artificial fats. Without these natural essential fats, the cells, organs and especially the human brain can not function properly and will degrade in time, occurring diseases especially the chronic ones, also called "lifestyle diseases". Human beings can biosynthesize their fatty acids specific to the length and saturation dictated by their unique structural and metabolic needs, and starting from the **natural** food fats consumed, except for the omega 3 and omega 6 essential fatty acids (Austin M.A., Hokanson J.E., Edwards K.L., 1998, Pearson T.A., Fuster V., 1996). According to specialized bodies' view the same recommendations should be maintained for patients with established cardiovascular disease as well as for healthy subjects facing an increased risk of coronary artery disease. The 2003 European guidelines on cardiovascular disease prevention make a number of strategic recommendations to make the attempts to change the lifestyle of patients concerned successful (De Backer G., Ambrosioni E., Borch-Johnsen K. et al., 2003). Thus it is necessary to establish a collaborative relationship with the patient, in which we need to ensure that s/he understands the relations between his/her own behavioural factors and the state of his/her own health or disease. One should also explain to patients some aspects regarding the physical discomfort or nutrition changes that will occur during the implementation of such actions and for which one need to obtain the consent of the person concerned (Nicklas B.J., Cesari M., Penninx B.W., Kritchevsky S.B., Ding J., Newman A., et al, 2006, Poirier P., Despres J.P., 2010, Poirier P., Eckel R.H., 2008). It is helpful for the patient to know the way the changes expected by us will be generated and manifest; it is very likely that the perceptions the patient experiments at the beginning of the corrective actions might not meet his/her expectations, therefore monitoring these changes should be accompanied by our benevolent explanations by

providing positive examples to our patient (Rexrode K.M., Manson J.E., Hennekens C.H., 1996, McAlister F.A., Stewart S., et al., 2004). For the success of our action we should take into account the particular characteristics of the local nutrition habits and behaviour of the patient as well as the specificity of his/her disease (i.e. hypertension, diabetes, dyslipidemia and so on). Some papers have shown a decrease in mortality among moderate drinkers. The mechanisms by which this occurs are the increase of HDL-C by 50%, the decrease of LDL-C by 18%, and the increase of systolic hypertension by 17%. One may notice a decrease of thrombogenic and fibrinolytic activity. One should recall here the French diet that includes small amounts of red wine that decreases platelet aggregation and increases antioxidant activity. But both the alcohol and fats have high calorific value, so that they are incompatible in the energy-restricted diets, so in hypertriglyceridemia. Collaboration with nutritionists is of great importance, the consultation of the latter should be done at each comprehensive health assessment in order to underpin the diet or change it. (Lloyd-Jones D.M., Tian L., 2006, Torpy J.M., Lynm C., Glass R.M., 2003, Brewer H.B., 2004). Successful implementation of healthy nutrition is safer if, besides the cooperation acceptance of the patient in question and the latter' level of self-awareness on such quest, the patient's family participates in acquiring healthy eating habits too. It is increasingly naturalized the habit of mentioning on all products the composition of each basic ingredient as well as the intake of various vitamins and minerals, especially as the patients contained in such actions should have at their disposal handy tables specifying calorific value per weight or volume unit for various food items included in the daily food menu. At the same time daily weight monitoring of the patient is part of healthy eating. The survey results show a rapid improvement in terms of symptoms of this pathology because of effective combination between diet and medical treatment. In terms of changing lifestyle: 166 patients (66.4%) accepted from the very beginning the diet plan as proposed (compliers), observed it and cooperated actively with us. A group 43 patients (17.2%) did not fully comply with the diet plan, yet complied with most diet principles (inconstant compliers) and 41 patients (16.4%) provided to us no guarantees on complying with the diet plan (non-compliers).During the first scrutiny carried out at about 90 days from the start of the intervention, the above data changed according to the following course: the number of complying patients who accepted the diet plan (compliers) increased from 166 to 193 (i.e. 66.4% to 77.2%), the number of inconstant compliers decreased from 43 to 23 (i.e. from 17.2% to 9.2%), and the number of those who were originally non-compliers, seven patients (2.8%) became disciplined compliers (figure 2).

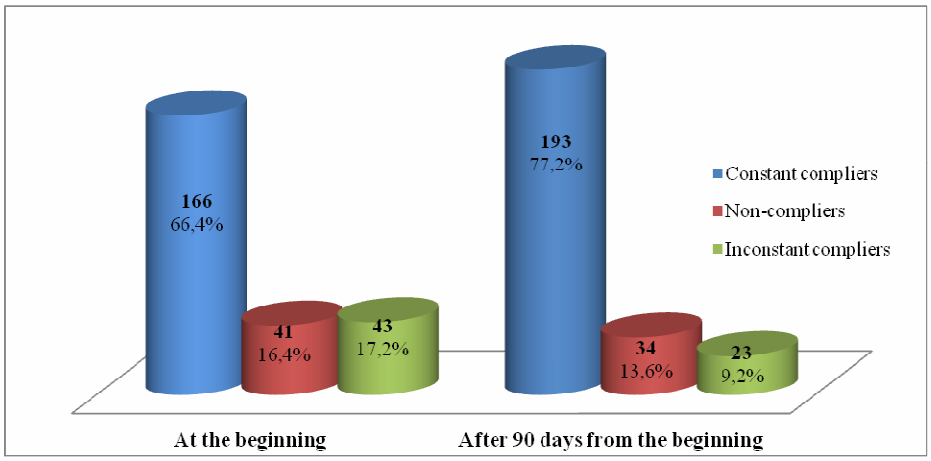

Fig 2. Distribution of patients by lifestyle change outcomes(the diet plan)

Full participation in the therapeutic management (lifestyle change and pharmacological treatment) occurred in 68.0% of patients and partial participation in the case of 28.0%, of whom 18.8% preferred pharmacological treatment. A rate of 6% of patients refused any form of pharmacological treatment or lifestyle change (figure 3).

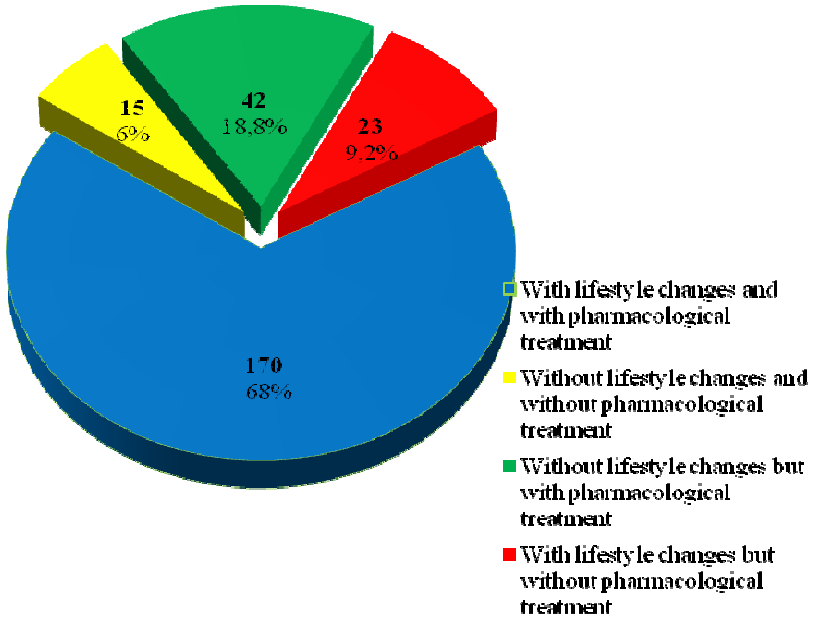

Fig 3. Distribution of patients by the outcomes of lifestyle changes and pharmacological treatment

CONCLUSION

In our study, dyslipidemia was the most commonly encountered risk factor, particularly in the case of female patients while obesity was more common in male patients. Self-awareness of lifestyle changes (i.e. antilipemic agents diet, making physical activity, suppressing excessive alcohol consumption and smoking) and complying with the pharmacological treatment were observed by more than half of surveyed patients. The greatest impact of life style changes and pharmacological treatment altogether was recorded in the obesity cases i.e. almost half of patients regained normal weight. The average number of admissions decreased for the entire group of patients. Lifestyle changes associated with pharmacological treatment has a positive impact on the number of hospitalizations and heart failure, as well as avoiding major events (infarctation - reinfarction).

In order to reduce the risks of major events or death, it is necessary to assess the modifiable risk factors (i.e. hypertension, diabetes mellitus, dyslipidemia), which should not be underestimated, and also one should evaluate their prevalence and the preventive and corrective measures that could affect have a positive impact. A thorough analysis of the family history in terms of ischemic heart disease, other localizations of atherosclerosis (i.e. cerebral or peripheral), detection and accurate diagnosis of cases by controlling and monitoring the groups at risk, performing daily physical activity, especially in the case of people with sedentary occupations are just a few examples to prevent of cardiovascular disease.

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