© O.M. RUDAKOVA, T.V. BOLOTNOVA
malenkaj82@bk.ru

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POLIPATHY AMONG THE ELDERLY

ABSTRACT. An elderly person is considered to be a person over 65 years old. Currently, this category comprises about 15% of the population both in Russia and in many industrialized countries. The prevalence of hypertension in this age group is 50%. Turning to the figures of morbidity rate among the people of different age groups, provided by the National Center for Health, we can clearly see that percentage of cardiovascular disease increases significantly with ageing. The prevalence of cardiovascular disease increases due to the aging population, changed lifestyles, and lack of current prevention programs. Elderly patients are characterized by a number of features including widespread comorbidity (coronary heart disease, diabetes, chronic lung disease, heart failure, renal dysfunction, peripheral atherosclerosis, neurological and orthopedic pathology, etc.). Reduction in cardiovascular morbidity and mortality in recent years has become one of the main tasks of practical medicine. Early diagnosis of such important risk factors as hypertension, dyslipidemia, abdominal obesity and carbohydrate metabolism are the major ways of dealing with it.

KEY WORDS. Senior person, polypathy, «prediabetes».

People's health is one of the most important indicators of the society's development.

Nowadays the main problem in medicine is reduction of disease risk. Diabetes mellitus (DM), smoking, dyslipidemia are considered the main risk of cardio-vascular diseases (CVD). In spite of the effectiveness of modern research methods it is still necessary to work out principally new approaches to diagnostics and treatment of the diseases of the cardio-vascular system (CVS). The urgency is explained by the high rate of cardio-vascular pathologies among the death causes in the Russian Federation – over 50% [1]. Addressing the data of the National Health Center we see that every year there are significantly more people with CVD. It happens due to the growing age of the population on the whole and changes in their lifestyle. CVD are spread both in developed and developing countries. CVD are also the main cause of disability and deterioration of people's quality of life. Considering that the most popular cause of death in Russia is ischemic heart disease (IHD) [2]. The most frequent association of cardio-vascular diseases is the combination of arterial hypertension (AH) and IHD.

The number of senior citizens is growing all over the world. With ageing of the population the issues of modern and effective medical aid to the people of senior age are becoming more critical (according to WHO a senior person is a person over 65 years of age). CVD are the most widespread among the senior people all over the

world; IHD accounts for half of all the cardiovascular pathologies in this age group. According to the epidemiological research IHD incidence among older persons reaches 20% in all the population. Moreover, with age there is an increase in IHD reaching 25% for 70-year-olds and about 30% for 80-year-olds. With age IHD patients develop a number of concomitant diseases. Older people tend to "accumulate" diseases. They may have simultaneously up to 3-4 diseases (polypathies). It is connected with the fact that increased life expectancy comes with a combination of a number of disorders of organs and systems. For older people AH combines with various metabolic disorders. According to opinions of many authors the most significant of them are carbohydrate metabolism disorders [3-4]. The combination of AH, lipid and carbohydrate metabolic disorders is not accidental; insulin resistance is the linking mechanism of a cascade of metabolic disorders [5]. AH patients have a triple risk of diabetes mellitus (DM) development. In Russia 38% males and 56% females have an association of AH and DM. The carbohydrate metabolic disorders prior to DM have been suggested to refer to with the term "prediabetes" [6] in order to make an emphasis and highlight the high risk of further DM development (about 4-9% cases a year). The people diagnosed with "prediabetic" carbohydrate metabolic disorders significantly outnumber DM2 patients. DM2 incidence in western countries (according to different epidemiological research) is 5-7%; prediabetic conditions are revealed twice as often – 10-16% [7]. It was proved that both impaired fasting glucose and impaired glucose tolerance are predictors of DM development. However use of the glucose tolerance test lets identify much more patients from the risk group suitable for a course of preventive measures [8]. It has been proved that impaired glucose tolerance increases CVD risk by 1.5. In 2007 the working group on DM and CVD and the European Association on DM study published "Recommendations on diabetes mellitus, "prediabetes" and cardiovascular diseases" [9]. The document presents a present-day classification of carbohydrate metabolic disorders such as impaired fasting glucose, impaired glucose tolerance (IGT) and DM. Of special diagnostic value is glucose level definition after glucose tolerance test (GTT) as, if we look only at the fasting glucose level, we may miss the first signs of hyperglycemia and latent DM in 30% cases. According to the Euro Heart Survey DM incidence for the IHD patients reaches 30%, 10% DM cases are diagnosed while GTT. 26% patients display a high glucose level in blood samples on an empty stomach and impaired glucose tolerance. Thus, only 1/3 patients with stable IHD do not have carbohydrate metabolic disorders. However, the Euro Heart Survey concerns patients of 60 years old; as for the older patients DM can be more frequent. Prognostically unfavorable diseases such as IHD, chronic cardiac failure (CCF) and DM at the first stage of their development can be represented only by risk factors (RF) provoking start of a cardiovascular pathology. Many factors contribute to CVD so while defining CVD risk it is necessary to take into account all the patient's RF. The risk factors which should be considered while estimating risks of cardiovascular complications development for AH patients are not divided into the primary and secondary. New positions have been included into these risk factors: pulse pressure

value (difference between SAP and DAP = PAP) for the elderly; FBG – 5.6-6.9 mmole/l (102-125 mg/dl); impaired glucose tolerance; total cholesterol values, LDL (low density lipoproteins), HDL (high density lipoproteins) and triglycerides (TG). It is well-known that the majority of patients with a cardiovascular pathology, including AH patients, simultaneously display several RF. According to the classical Framingham study [10] 55% male and 56% female AH patients can have two or more RF. Similar data have been obtained for Russia [11]. Effective correction of the risk factors can significantly reduce CVD and their complications development [12].

Free fatty acids (FFA) are a new marker of insulin resistance and ischemia. The earlier researches have proved that impaired glucose tolerance is connected with high FFA levels [13]. Increased FFA levels lead to dyslipidemia and atherogenesis as well as reduction of the "antiatherogenic" cholesterol level of high density lipoproteins, formation of highly atherogenic small dense particles of cholesterol of low density lipoproteins and increase in the plasma levels of triglycerides [14]. Increased levels of free fatty acids are the earliest marker of ischemia; increased levels of FFA are RF of sudden death [15]. Thus, FFA excess causes insulin resistance and dyslipidemia which increase the FFA level even more.

We have conducted complex clinical-functional, laboratory and instrumental researches of two groups of patients: 1st group (main) consisted of 50 older AH patients with IHD and impaired glucose tolerance; 25% males and 75% females; average age 68.6± 2.1. The 2nd group (comparison group) included 48 senior AH patients with IHD, 60% males and 40% females; average age 68.2± 1.9.

Increased values of FFA are found for the women of both groups; in the main group of AH patients with IHD and IGT FFA level is 0.67±0.15 mmole/l which is significantly higher ($p<0.001$) than for the older women with AH and IHD – 0.57±0.07 mmole/l. In the group of the males FFA level is significantly higher ($p<0.01$) in the first group of AH, IHD and IGT patients than in the group of patients without carbohydrate metabolic disorders (0.70±0.01 mmole/l and 0.56±0.14 mmole/l correspondingly). Both groups of patients show increased LDL. The average LDL level for the older patients with AH and IHD is 2.74±0.98 mmole/l; for the patients with carbohydrate metabolic disorders it is 2.93±0.92 mmole/l ($p>0.05$). The average HDL level for the older women with AH and IHD is 1.49 ±0.72 mmole/l; for the males – 1.38±0.53 mmole/l. HDL level in the group of female patients with AH, IHD and IGT is 1.52±0.67 mmole/l, in the group of male patients it is 1.74±0.74 mmole/l ($p>0.05$). The triglyceride level is insignificantly increased in both groups: 1.79±1.07 mmole/l in the main group and 1.66±0.85 mmole/l in the comparison group ($p>0.05$). The research has shown that FFA level is higher for the older patients with carbohydrate metabolic disorders. Increased FFA level is accompanied by an increase in triglycerides and LDL as well as HDL decrease. The data obtained also indicate lipid metabolic disorders among the senior patients with AH, IHD and IGT.

The task of the doctor treating a 60-plus patient is to maximally possible relieve the clinical manifestations of the diseases, improve the prognosis and minimize the

risk of development of possible complications. One of the ways to solve the problem is implementation of the measures aimed at prevention, disease incidence reduction and quality of life improvement. The aforementioned testifies to the importance of development of special schemes of diagnostics, early detection and prevention of polipathies for the older patients.

The results we have got prove the necessity to optimize preventive measures on reduction of the degree of cardiovascular risk, early diagnostics, treatment of carbohydrate metabolic disorders, and complications prevention which should include:

1. Detection of possible CVD risk factors and their prevention (giving up smoking; weight loss, diet, arterial pressure and blood sugar control; dosed physical exercising).

2. Improvement of the quality of medical check-ups aimed at early detection of diseases and their complications. The compulsory medical examination should include: PAP test, glucose tolerance test, FFA test, LDL and HDL test and triglyceride test.

3. Regular visit of health centers by the patients. Patients with CVD risk factors should be subject to special regular medical check-ups by general physicians, endocrinologists and cardiologists.

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