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## **Fetal Risk From Cardiovascular Diseases among the Population of Fergana Valley**

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### **ABSTRACT**

In the article analyzed frequency of cardiovascular diseases (CVD) risk factors, such as arterial hypertonia, hypercholesterolaemia, smoking, overweight/obesity in men and women of Fergana valley in different ages. Frequency and structure of CVD risk factors, their combination and contribution to evolution of cardiovascular risk were comparative analyzed in men and women depending on the age. The first estimated fetal risk from CVD in 10 years depending on gender and age of patients by SCORE 2005, 2011 and 2007 years, comparative analyzed, on the base of which given practical recommendations.

**KEYWORDS:** ischemic heart disease (IHD), total cholesterol (TCh), high density lipoproteins (HDL), low density lipoproteins (LDL), very low density lipoproteins (VLDL), triglycerides (TG).

### **INTRODUCTION**

Atherosclerosis with its basic clinical manifestations keeps leading in structure of illness and death. At the same time in last years achieved high advances in decreasing of cardiovascular death in many developed countries. In experts' judgment, this effects show introduction of atherosclerosis primary prophylaxis rules, healthy life-style, basic principles of conclusive medicine and so results of polycentric clinical researches.

Disturbance of lipids' metabolism is one of the important risk factors in developing and progressing of cardiovascular disease (CVD). Showed, that there is distinct correlation between cholesterol concentration and death level from ischemic heart disease (IHD) [1-3].

There is no doubt that there is a connection between lipid disorders - dyslipidemia (DLP) and CVD. Therefore, the population aspects of the DLP problem are an important tool for decision-making in the field of health care, allowing assess the medical and economic feasibility of

preventive and therapeutic measures and predict their effect. The three most common causes of mortality in the Turkey as well as in Uzbekistan are cardiovascular diseases (35.4%), cancer (15.2%), respiratory diseases (13.5%). In the latest observational registration study conducted in Tashkent, a high frequency of modifiable risk factors (RF), including DLP, was established in patients with acute coronary syndrome (ACS)/acute myocardial infarction (AMI). It was characteristic that lipid-lowering therapy was carried out only in 8,0% of cases, that is, low compliance with the standard in the treatment of coronary heart disease is noted. [2]

## LITERATURE ANALYSIS

Disease of cardiovascular system is one of actual problems of healthcare of our Republic. Analysis of mortality reasons showed, that death-rate from CVD staying as prevalent in structure of total mortality, it made 56% (79120 per.) in 2005, and 59,3% (79239 per.) in 2009 years [4]. Comparative analysis of mortality rate from CVD among people able-bodied age (to 100 thousand able-bodied populations in age of 25-64 years, in a year) show, that Uzbekistan among countries of CIS takes 8<sup>th</sup> place (among women 121,3 and among men 220,7 to 100 thousand able-bodied populations). Although, mortality substantially lesser than Russian Federation (among women 241,9 and among men 762,8), Kazakhstan (252,2 and 672,3), Ukraine and Belorussian, but more than European countries, such as Germany, France, Sweden and others (37 and 107,4 etc.).

Important aspect of CVD prophylaxis is detection of persons with disturbance of lipids' metabolism and without clinical symptoms of IHD. Estimation of individual fatal risk, so possibility of death from IHD, peripheral atherosclerosis and stroke on persons without clinical symptoms of enumerated diseases in 10 years takes on table of Systemic Coronary Risk Evaluation (SCORE). Is shown that, decrease of a level such powerful risk factors (RF) such as, hypercholesterolemia (HChE) and arterial hypertension (AH) - leads to significant (to 20-40%) reduction of total death from CVD.

In Uzbekistan part of men dead from CVD, in able-bodied age, was 31,1% in 2000 year and to beginning 2010 y. it increase till 41,0%. In women it also increase from 26% to 32,2% (WHO Global InfoBase). In spite of timely professional examination, which gives opportunity to escape mortality raising from CVD, possibly main factor which determines given condition are poor awareness of population about RF and their interaction, absence of fatal risk assessment and training patients with high risk level, supporting they for correction RF and reducing cardiovascular mortality, which defined purpose and tasks of the research.

Prevention of CVD is ensured not only by motivating the population to lead a healthy lifestyle, but also by introducing screening for CVD and their risk factors (RF), primarily DLP, into the daily practice of primary health care [5].

It has been proven that reducing of RF at the population level, especially DLP, leads to a long-term and reliable decrease in mortality from CVD. Therefore, at the beginning of the 21st century, the main tasks of epidemiology include not only the assessment of the main RF, but also the cardiovascular risk in connection with the "main" risk factors (WHO 2018) using the results of periodic population studies and pharmacoepidemiological screening. A significant contribution to mortality from CVD is made by - DLP (23%), arterial hypertension (AH) (35.5%), smoking (17.1%), low consumption of vegetables and fruits (75.5%), obesity (11.9%) and physical inactivity (9%). These same RF are also characterized by high prevalence among the population. From this perspective, an important area of CVD epidemiology is the identification of true epidemiological conditions, or epidemiological modeling based on qualitative and new epidemiological results - is the only and main way to justify the need for cardiovascular prevention at the population level for the population living in different climatic and geographical regions and living conditions. Among the RF, special attention is drawn to DLP, hypercholesterolemia (HCH), hypertriglyceridemia (HTG), high levels of low-density lipoprotein cholesterol (LDL-C) and low levels of high-density lipoprotein cholesterol (HDL-C) [6].

The cardiovascular continuum is the "end point of the epidemiological process" that develops

under the influence of more than 300 factors: internal, external, hemodynamic, humoral, metabolic, epidemiological, and along with other risk factors, cardiovascular disease has a significant negative impact on the development of epidemiological and clinical "end points". The solid Framingham study showed a direct relationship between cardiovascular disease and cardiovascular mortality, which determines the absolute relevance of early diagnosis of cardiovascular disease and the influence of modifiable factors on this process, in particular, lipid metabolism disorders, which are widespread among the modern population. Expansion and accurate understanding of the role of cardiovascular disease in the development of pathogenic epidemiological conditions and situations in relation to cardiovascular disease and/or non-infectious pathologies in various populations will allow the development of new innovative diagnostic, therapeutic and preventive strategies [7].

The three most common causes of mortality in the Turkey as well as in Uzbekistan are cardiovascular diseases (35.4%), cancer (15.2%), respiratory diseases (13.5%). In the latest observational registration study conducted in Tashkent, a high frequency of modifiable RF, including DLP, was established in patients with acute coronary syndrome (ACS)/acute myocardial infarction (AMI). It was characteristic that lipid-lowering therapy was carried out only in 8,0% of cases, that is, low compliance with the standard in the treatment of coronary heart disease is noted.

## **RESEARCH METHODOLOGY**

To estimate fetal risk from CVD in 10 years, among the population of Fergana valley. Based on the goal there were determined following tasks of the research:

1. To study the frequency of CVD RF, such as smoking, AH, HChE men and women in different age.
2. To estimation of fetal risk from CVD in 10 years depending on the age and gender of patients.
3. Comparative analysis of fetal risk from CVD men and women Fergana valley by SCORE 2005 and SCORE 2011 years.

The object of study is based on 382 patients, in the age of 25-69 years, which haven't clinical signs of atherosclerosis and hospitalized at the gastroenterological department of the Clinic of Andijan State medical institute and cardiology department of the second hospital of Fergana and so examined patients in "Andijan Tibbiy Diagnostika" diagnostic center within 2022-2023 years.

Performed one-timely patient examination, with method of random sample and filling specially prepared questionnaire. Questionnaire contains passport details of the patient (N.S.P., age, gender and address), smoking, blood pressure (BP) and laboratory-biochemical data: total cholesterol (TCh), high density lipoproteins (HDL), low density lipoproteins (LDL), very low density lipoproteins (VLDL), triglycerides (TG), glucose and creatinin in blood according to testimony. Showed principal diagnosis and its complications, and associated diagnoses.

The survey, biochemical and instrumental research methods were applied. The height of the respondents is measured using a vertical height meter in a standing position, without shoes, with an accuracy of 0.5 cm. To measure body weight, a verified growl medical scale is used, body weight is recorded with an accuracy of 100 g. The body mass index (BMI) will also be used for the analysis of body weight(kg)/height(m<sup>2</sup>). The waist circumference is measured with a centimeter tape, applying it horizontally in the middle between the lower edge of the costal arch and the sacral ilium. Blood pressure (BP) is measured three times with an interval of 2 minutes, on the right hand, in a sitting position after a 5-minute rest using an automatic tonometer with the registration of the average value of three measurements. Arterial hypertension (AH) is recorded at systolic blood pressure $\geq$ 130 mmHg and/or diastolic blood pressure $\geq$ 85 mmHg. Blood samples from the ulnar vein will be taken from all examined patients once in the morning on an empty stomach 12 hours after eating. Indicators of lipid metabolism – total cholesterol (OHC), triglycerides (TG), cholesterol (HC), LDL-C, HDL-C, as well as glucose, uric acid (MC) and gland (Fe<sup>++</sup>) levels in blood serum will be measured by enzymatic methods using standard

BiocanFenitest reagents (Germany) on the biochemical analyzer LabSystemFP-901 (Finland).

Used SCORE algorithm (European guidelines 2005 and 2011) for determining absolute fetal risk from CVD in 10 years for patients elder 40 years, and relative risk from CVD in 10 years for patients younger 40 years. Statistic handling of results performed with using program package of standard functions Statistica 6.0, graphic and statistic program DIASTA (RF, Kaliningrad, 1996 year). The digital data were subjected to statistical analysis, using a calculator. Certainty value of findings of investigation was determined on the base of Student-Fisher's t-test.

## **ANALYSIS AND RESULTS**

Examined 382 patients: 33.2% (127 per.) of them are men and 66.8% are (255 per.) women ( $p < 0,0001$ ). Results of the study showed, that among examined patients smoking was revealed in 70.8% men (90 per.) and 5.1% (13 per.) women. Overweight/obesity and AH revealed approximately in equal parts, in 55.1% (70 per.) and 51.9% (66 per.) men; in 54.1% (138 per.) and 56.1% (143 per.) women, accordingly.

Analyze of RF (age, gender, smoking, abdominal obesity, AH, DM, HChE and family history of premature CVD) showed, that 10.6% (27 per.) of women were had no one RF. 1-2 RF were had in 15.7% (20 per.) men and reliably often in women 47.5% (121 per.), ( $p < 0,001$ ). Combination of 3-4 RF had 57.5% (73 per.) men and 40% (102 per.) women ( $p < 0,001$ ), 5 and more RF revealed on 26.8% (34 per.) and 1.9% (5 per.) men and women ( $p < 0,005$ ), accordingly.

On study of 298 patient's lipidic spectrum, revealed, wide spread of DLP: HChE, low index of HDL and high index of VLDL had every 4<sup>th</sup> man – HChE in 23.4% (26 per.), low index of HDL 29.7% (33 per.) and high index of VLDL in 28.8% (32 per.), but hypertriglyceridemia (HTG) and high index of LDL was revealed more often – in 46.8% (52 per.) and 40.5% (45 per.) accordingly. Among women DLP was revealed in following order: low index of HDL had 54.5% (102 per.), high index of LDL 47.1% (78 per.), HTG 41.7% (78 per.), HChE 24.1% (45 per.) and high index of VLDL 12.3% (23 per.) women.

On comparative analyses of lipidic spectrum of men and women in different age groups (1<sup>st</sup> group – younger 40 years and 2<sup>nd</sup> group – elder 40 years), in men of senior group VLDL was revealed 4 times more ( $p < 0,001$ ) and TG 1,7 times more ( $p < 0,01$ ) than men of junior group. In relation of TCh and HDL, different weren't detected. In women of senior group low index of HDL 1.7 times more revealed ( $p < 0,001$ ), in the rest lipid fractions particular changes weren't defined.

Fetal risk from CVD estimated on the table SCORE 2005 year in 333 patients elder 40 years. Low risk was revealed in 1.9% (2 per.) men and 35.4% (81 per.) women ( $p < 0,0001$ ), moderate risk in 56.7% (59 per.) and 50.2% (115 per.), high risk in 25.9% (27 per.) and 11.8% (27 per.), very high risk in 15.4% (16 per.) and 2.6% (6 per.) men and women accordingly.

With usage of HDLP on the chart of SCORE 2011 year, revealed better results in men, than SCORE 2005 year (in 249 patients with blood lipidic spectrum). Amount of patients with very high risk decreased from 13.6% to 11.3%, patients with low risk increased from 2.3% to 6.8% ( $p < 0,05$ ). In relation of moderate and high risk particular changes weren't detected. But in women revealed another results. Amount of patients with low risk decreased from 40.9% to 36%, moderate risk from 45.3% to 42.9% and high risk increased from 12.4% to 16.1%, very high risk reliably increased from 1.2% to 5% ( $p < 0,05$ ).

In assessment of relative fetal risk in patients younger 40 years, in women low risk revealed at 11.5% (3 per.), in men weren't revealed. Moderate risk was revealed in 91.3% (21 per.) men and 84.7% (22 per.) women, high risk was revealed in 8.7% (2 per.) and 3.8% (1 per.) accordingly. Very high fetal risk from CVD wasn't revealed.

## **CONCLUSIONS**

Every second men and women had AH, overweight/obesity. Smoking became as the main RF in men and was revealed in 70.9% ( $p < 0,0001$ ). Among residents of Fergana valley 84.3% men and

41.9% women had 3 and more RF ( $p < 0,0001$ ), amount of which increased according to age. Key indicators of DLP in men were VLDL ( $p < 0,001$ ) and TG ( $p < 0,01$ ); among women LDL and, especially, HDLP ( $p < 0,001$ ). In a moment TCh was less informative, and revealed on lesser values than other lipid fractions. Comparative analyze of DLP in different age groups showed, that in men of senior group VLDL was revealed 4 times more ( $p < 0,001$ ) and TG 1,7 times more ( $p < 0,01$ ) than men of junior group. In relation of TCh and HDL, different weren't detected. In women of senior group low index of HDL 1.7 times more revealed ( $p < 0,001$ ), in the rest lipid fractions particular changes weren't defined. In assessment of absolute fetal risk on table SCORE 2005 year, among the patients elder 40 year high risk 1,6 times and very high risk 4,5 times more revealed in men – 25.9% and 11.8% ( $p < 0,01$ ), against to 15.4% and 2.6% in women. Low risk was revealed in 1.9% men and 35.4% women ( $p < 0,0001$ ). On comparative analyze of SCORE 2005 and 2011 years' results, in men particular changes weren't defined. In women, usage of HDL indexes on the chart of SCORE 2011 year increases percent of high and very high risk detection from 12.4% to 16.1%, and from 1.2% to 5% ( $p < 0,05$ ), accordingly. In assessment of relative fetal risk from CVD, in patients younger 40 years, occurrence of high risk more in men - 8.7%, in comparison with women - 3.8%.

According to results have to introduce to practice estimation risk of fetal CVD in 10 years by the chart of SCORE 2011 year, as a more informative, for estimating absolute fetal risk on patients elder 40 years. In patients younger 40 years must be used chart of SCORE 2007 year for estimating relative fetal risk. Usage of this method at the primary section of healthcare, gives opportunity to estimate cardiovascular risk and to organize timely prophylaxis of CVD. In examination of patients together with traditional RF recommends checking LDL, VLDL and TG in men; LDL and especially HDL in women, which effects to frequency of cardiovascular risk. Necessary to organize “School of patients with cardiovascular risk” at family polyclinics, village and town medical points, to training patients about prevention and treatment depending on level of cardiovascular risk and DLP. This makes it possible to spend wide-ranging preventive action among adult population with the aim of reducing morbidity and mortality from CVD.

#### **LIST OF REFERENCES USED**

1. O'Donnell M, Xavier D, Liu L, Zhang H. Risk factors for ischaemic and intracerebral haemorrhagic stroke in 22 countries (the INTERSTROKE Study): a case-control study Reference: *Lancet* 2010; 376:112-123.
2. Lakerveld J., Brug J., Bot S., Teixeira P.J. Sustainable prevention of obesity through integrated strategies: The SPOTLIGHT project's conceptual framework and design. // *BMC Public Health*. – 2012. – V.17(12). – P.793.
3. Khandelwal S, Reddy KS. Eliciting a policy response for the rising epidemic of overweight-obesity in India. // *Obes Rev*. – 2013. – V.14(2). – P.114-25.
4. European Society of Cardiology/ European Atherosclerosis Society Guidelines for the management of dyslipidaemias. The Task Force for the management of dyslipidaemias of the European Society of Cardiology (ESC) and the European Atherosclerosis Society (EAS). *Atherosclerosis* 2011; 217S: S1–S44.
5. Crowther NJ. Early determinants of chronic disease in developing countries. // *Best Pract Res Clin Endocrinol Metab*. – 2012. – V.26(5). – P.655-65.
6. Bertuccio P, Levi F, Lucchini F, et al. Coronary heart disease and cerebrovascular disease mortality in young adults: recent trends in Europe *European Journal of Cardiovascular Prevention & Rehabilitation* August 2011 18: 627-634.
7. Атаханова Н.С. Частота факторов риска сердечно-сосудистых заболеваний среди населения ферганской долины.// *RE-HEALTH JOURNAL* – 2020. - № 2.3(6) – P 1-5.
8. AHA Statistical Update. Heart Disease and Stroke Statistics-2011 Update. A Report From the American Heart Association. // *Circulation*. 2011. – V.123. – P.18-209.