

WORLDWIDE RISK FACTORS AND CARDIOVASCULAR DISEASES

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Abstract: Cardiovascular disease affects more people of average age, income and reducing their saving potential. A reduction in mortality and morbidity from cardiovascular disease would have a major beneficial effect of rising health care costs and foster socio-economic development of communities and nations

Rezumat: Boala cardiovasculară afectează tot mai multe persoane de vârstă medie, reducându-le venitul și potențialul de economisire. O reducere a mortalității și morbidității prin bolile cardiovasculare ar avea un efect benefic major asupra costurilor în creștere ale îngrijirii medicale și ar favoriza dezvoltarea socio-economică a comunităților și națiunilor.

It is more than 50 years since the determination of **risk factors** for cardiovascular diseases and the formulation of a largely acknowledged pathogenic theory.

The major cardiovascular risk factors are smoking, diabetes mellitus, dyslipidemia, arterial hypertension and family history related to early vascular disease, to which are added predisposing factors associated to vascular diseases, such as obesity, metabolic symptom, sedentary lifestyle, diets rich in fats.

Smoking will be one of the major causes of death by 2020, killing 8 million people in the whole world. While the number of smokers is gradually decreasing in western countries, it is always increasing in Asia and many developing countries.

Nicotinism is a contributing factor for atherosclerosis, ischemic cardiopathy, infarctions and limb circulation disturbance. Smoking also interferes with the therapeutic effect of some medicines used for the treatment of cardiovascular diseases that is why the people suffering from heart diseases who continue to smoke will have no benefit from the medical treatment applied to them.

Almost 30% of deaths caused by cardiovascular diseases may be assigned to smoking. Studies made in autopsies indicated a close relation between smoking and **atherosclerosis**. The death risk is by 70% higher in smokers than in non-smokers, and by 200% higher in those who smoke 2 or more packs of cigarettes a day. When smoking is associated with both a high rate of cholesterol in blood and arterial hypertension, the risk for a cardiovascular disease is 8 times higher compared to the situation when only one of these factors is present. The risk of sudden death is 2-4 times higher in smokers than in non-smokers. The use of oral contraceptive drugs associated with smoking makes the risk of myocardial infarction 10 times higher in women.

Every year in Europe approximately 1.2 million people die of diseases caused by smoking. WHO – World Health Organization – estimates that in 2010 the financial burden related to smoking will be about 130 billion Euros.

Non-smokers exposed to a smoking environment, the so called passive smokers, also have a high risk for developing diseases associated to this bad habit. Almost 33 000 passive smokers in U.S.A. and 20 000 in the European Union die of such diseases every year. Passive smokers risk to develop cardiovascular diseases is by 60% higher, determining various changes in the circulatory system.

Nicotinism is currently considered a malady having all the attributes of an epidemic, more exactly a pandemic of this century. Without any exaggeration, due to its aggressive nature, tobacco pandemic was compared with the devastating tuberculosis or AIDS.

Besides the epidemiologic impact, social and economic costs created by smoking cannot be ignored. Smokers miss from work almost 6.5 days per year more than non-smokers, which results in a significant cost for the global economy.

Diabetes mellitus is a cardiovascular risk factor, causing death in 70-80% of the population suffering from this disease.

The risk of dying of cardiovascular affections grows by 300% in sick people suffering from diabetes than in the other people. Almost 90% of the patients with diabetes mellitus developed during maturity age are overweighting or obese. Recent data show that abdominal **obesity** is a factor predicting myocardial infarction better than overweight or body mass index.

Among the countries mostly affected by obesity, U.S.A. is on top, with more than 60% of its population being overweighting, of which 33% obese people. In Europe the first places belong to Serbia and Greece. The increasing infantile obesity is really alarming, over 16% in U.S.A. An obese child has 80% chances to become an obese adult and develop cardiovascular or metabolic diseases (diabetes mellitus) even at young age.

In many states of the European Union half of the adult population is already overweighting, while one child of 5 is obese. The figures in Europe are alarming: 27% of males, 38%

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of females and almost 5 million children are obese, with 300 000 – 400 000 new cases every year. In average, 6% of the national health budgets cover the costs of obesity and of the diseases it causes.

Arterial hypertension and high cholesterol rates are the major risk factors in developing cardiovascular diseases. According to WHO's data, these factors work together for more than 400 million people. The epidemiologic studies made by U.S.A. indicate that the individuals with high blood pressure are 6-7 times more exposed to the risk of high cholesterol rates. When both these rates are high, the individuals concerned are 2 times more exposed to the risk of developing cardiovascular diseases.

Statistics show that arterial hypertension is present in 25-30% of the world population. Nevertheless, 1/3 of the individuals with high blood pressure are not even aware they are suffering from such a disease.

Each second or third individual of those over 60 are suffering from arterial hypertension which can be called the "chronic killer no.1 of the world", as it also occurs in those over 40 and even younger.

According to a European survey, 70% of physicians think that most cerebral vascular accidents could be avoided if arterial hypertension were treated appropriately.

Both in Europe and in U.S.A., arterial hypertension is the first diagnosis given by family physicians. At world level, from almost one billion hypertensive individuals half are not treated, while from those who receive treatment, half are improperly treated.

In the European Union countries, cardiovascular diseases represent the cause for 42% of the deaths registered in **males** and 55% of those registered in **females**.

Cardiac problems are more frequent in females, killing 8.5 million women every year, causing the death of half of those aged over 50 who live in developing countries. Although this was initially a problem specific to the developed countries, it has been noticed as a growing trend in developing countries, too.

According to the data supplied by WHO, more than half of the women over 45 are hypertensive and more than 30% of them have isolated systolic hypertension. The risk to develop a major cardiovascular accident is higher in the women with coronary diseases, in particular those who reached menopause, when the number and level of risk factors are noticed to grow.

Healthy women living in **polluted areas** are exposed to higher risks of developing cardiovascular diseases and dying of them, as concludes a study conducted by a team of American researchers and published in New England Journal of Medicine. The study was made on 65 000 women aged between 50 and 79, living in 36 urban centers of the United States. The authors discovered that the risk of developing a cardiovascular disease is directly proportional to the level of environmental pollution.

The soot resulted from biomass burning is the cause of death in 340 000 people living in China and India, who developed cardiovascular or respiratory diseases.

As far as **aging** is concerned, in individuals over 45 the risk of dying of cerebral vascular accident or myocardial infarction grows by 300-400% every 10 years.

Males aged between 34 and 75 are 30% more exposed to death of CVA and 200-300% more exposed to death of myocardial than women. After the age of 75, the risk to die of cardiovascular affections becomes equal for both males and females.

The daily consumption of large quantities of **alcohol** causes other cardiac affections and increases the risk of vascular accidents and arterial hypertension.

Those who do moderate **physical exercises** for at least

20 minutes every day present a 30% smaller risk to die of cardiovascular disease than those who are sedentary.

The **socio-economic condition**: the level of education, revenues and employment strongly influence the risk of cardiovascular affections.

In 1980, in U.S.A., those earning 18 500 dollars per year registered a 40% higher rate of death from cardiovascular diseases as compared with those with a yearly revenue of 32 000 dollars.

The WHO statistics indicate that by 2030 **cerebral vascular accidents** will become the major cause of death in the world. The main determinants of CVA are: arterial hypertension, cardiac arrhythmia, diabetes, excessive smoking, high level of cholesterol and lack of physical exercise.

Cardiovascular diseases are responsible for more deaths in the world as compared with cancer, chronic respiratory insufficiency and diabetes taken together.

Cardiovascular diseases are estimated to become the major cause of handicaps by 2020, outrunning infectious diseases.

Cardiovascular diseases and cerebral vascular accidents are the biggest killers, taking 17.5 million lives every year, of which 80% from the countries with low and average revenue per capita.

Eastern Europe, Russia and the Balkan countries register a very high and even quickly growing rate for both cardiovascular affections and cerebral vascular accidents. China registers a higher rate of cerebral accidents and a smaller rate of cardiovascular affections than North America or Western Europe.

Occupational factors have an important contribution to the occurrence of cardiovascular diseases: overload, stress with psycho-social roots, working in shifts or in hard conditions, noise, cold, heat, sedentary lifestyle.

A great Scandinavian cardiologist stated that "experience showed that homo sapiens is not always a rational creature and does not easily waive desires and pleasures, even when they are a threat for his health". Hence, the serious health problems we face, namely the predominant pathology of this century, with cardiovascular diseases occupying the first place.

Patients are overburdened with the fast rhythm of life and poverty; they have educational shortcomings as far as health is concerned: they have improper eating habits, with too much fat and salt, they consume alcohol that "evolves from drug to nutrient and toxic substance". The quality of the marketed foods "infested" with lots of chemical elements, the rich content in carbohydrates in nourishment as an expression of poverty, the daily activity program inadequately adapted to age, physical abilities and mental training of individuals make cardiovascular diseases be considered the "plague of the 21st century".

In South Italy, in Spain, partially in France and Greece, coronary diseases are less frequent than in other areas of the world, thanks to the Mediterranean diet, characterized by moderate consumption of fish, lean chicken, vegetables, fruits, whole-meal bread and defatted milk products.

A survey conducted by Japanese researchers under the coordination of dr. Kazuo Eguchi from the Jichi University of Medicine, Japan, on 1255 subjects, males and females with high arterial tension, aged between 33 and 97, showed that the males and females who slept for less than 7.5 hours a night had a 68% higher risk of infarction or death compared to the other subjects who had a better rest. Thus, a relation it was established between the chronic lack of **sleep** and the risk of developing health problems, including diabetes, coronary disease and obesity.

The American researchers examined the relation between **depression** and heart health. From a total of 93 676

females surveyed, almost 16% had higher scores on the depression rating scale. Along the 4 years of study, the rate of death caused by heart diseases was 50% higher in females suffering from depression than in those registering smaller score.

A group of researchers from the Cellular and Molecular Biology Center of Hyderabad, together with those from Welcome Trust Institute of Hinxton, United Kingdom, identified a **genetic mutation** which favors the occurrence of cardiopathy. One percentage of the world population bears this gene. In India this percentage rises to 4%. Thus, it is estimated that by 2010 almost 60% of all cardiopathy cases in the world will be diagnosed in India.

Cardiovascular diseases more and more affect medium age people, reducing their revenue and saving potential. In 2003, the European Union's costs with cardiovascular diseases rose to 169 billion Euros, while the annual costs in the U.S.A. was estimated to 403 billion dollars in 2006. A lowering of mortality and morbidity rates would have a benefic impact on the growing costs with medical attendance and would favor the socio-economic development of communities and nations.

Starting from 2000, the last Sunday of September has marked the **World Heart Day** every year, an initiative of the World Heart Federation under the patronage of the World Health Organization and UNESCO. Health organizations, societies specialized in cardiology, foundations, government and health institutions conduct various events in order to provide people with information on cardiovascular disease prevention. The activities organized on the World Heart Day are meant to highlight the risk factors related to cardiovascular affections, as well as to preventive factors. On this occasion brochures are disseminated, sports contests, round table and conferences are organized.

September 28th, 2008 marked the World Heart Day under the slogan "Know your risks!". Physicians from the whole world addressed this advice to all the people, considering that each of us can contribute to lower the risk of cardiovascular disease.

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