

The impact of public health action on the development of cardiovascular diseases

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Introduction: Cardiovascular diseases (CVD) are the leading cause of death throughout the world, and by 2030 the number of deaths is expected to rise from the current 20.5 million to 23 million. In Europe about 4 million people die annually from CVD, which is 45% of all deaths, while in Croatia 23,000 people, or 37%, die annually. It is a favorable fact that the majority of CVD can be prevented by avoiding risk factors, such as smoking, improper nutrition and insufficient physical activity, so up to 80% of premature deaths could be avoided¹. In addition to influencing modifiable risk factors in the purpose of early detection of CVD, they can also be influenced by early diagnosis, precisely because the determination of high-sensitivity troponins is today's diagnostic standard². Cardiac isoforms troponin I and T (hsTnI, hsTnT) are the most reliable biomarkers for detection due to their cardioselectivity pathological events of cardiac origin. Their increase is noted in various pathological conditions such as ischemic heart disease, pulmonary embolism, myocarditis, and several other conditions, which confirms that they are specifically associated with damage to cardiomyocytes of different etiology. In practice, they are most often determined for the purpose of diagnosis of acute coronary syndrome^{3,4}.

Patients and Methods: The City of Zagreb and the City Office for Social Protection, Health, Veterans and People with Disabilities in cooperation with the Institute for Cardiovascular Prevention and Rehabilitation, Zagreb has conducted public health scheme "Early detection of cardiovascular diseases for women of the City of Zagreb over 45".⁵ All patients agreed to be included in this study and signed an informed consent form. A survey of risk factors was completed considering family history, body weight and height, arterial hypertension, hyperlipidemia, diabetes, cigarette consumption and insufficient physical activity. Laboratory diagnostics was made with total cholesterol, LDL, HDL, triglycerides, HbA1c, hsCRP, hsTnI. The data of the public health campaign were collected from 5 May 2023 until 14 July 2023.

Results: 830 women between the ages of 45 and 83 participated in this research, with the average age of 56. A quarter of the women consume cigarettes, and more than 60% have a problem with insufficient physical activity. A quarter of women have elevated hsCRP values, while 14.82% have elevated values of HbA1c. It is significant that 75.54% of women have elevated LDL cholesterol values. Despite the high percentage of women being aware of the presence of elevated cholesterol, more than 45% do not use statins. Based on the analysis, it was determined that 10% of women have elevated values of hsTnI, and high values of 1.20%.

Conclusion: Analyzing the results of the public health campaign, more than 40% of women underwent a further non-invasive diagnostic processing due to elevated values of their laboratory tests. The results of such projects are a positive indicator for early detection of CVD and individual education of modifiable risk factors. By implementing public health projects, long-term costs in healthcare are reduced and the system at the tertiary level of patient care is relieved.

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