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Features of the Organization of Activities in the Field of Prevention of Cardiovascular Diseases

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ABSTRACT

All over the world, cardiovascular diseases are the cause of death or disability of a huge number of patients. At the same time, the age of patients with this diagnosis is gradually decreasing every year. For this reason, the prevention of such diseases has come to the fore over time.

The importance of prevention of this group of diseases is emphasized by all specialists in this field, this problem becomes the object of research of a significant number of scientific papers and the subject of discussion at professional conferences of medical professionals. In general, recent preference has been given to current recommendations that optimize the risk of cardiovascular diseases by accurately assessing such risk and changing the use of lifestyle; behavioral and pharmacological interventions also play an important role. Accordingly, it is necessary to conclude that the prevention of cardiovascular diseases should be comprehensive, in this case its results will be significant.

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INTRODUCTION

The growing priority of preventive measures has played an important role in helping clinicians to solve the problems of cardiovascular diseases (CVD) worldwide. Such diseases persistently maintain their reputation as the leading cause of morbidity and mortality. Mortality from cardiovascular diseases remains alarmingly high and is projected to reach an astounding 23 million worldwide by 2030, although overall mortality rates have declined in recent decades.[1]

However, the burden of CVD remains unchanged due to an increase in the number of patients who already have cardiovascular problems in middle age. Perhaps this problem occurs due to a decrease in the quality of life of patients, as well as due to the impact on people's health of various negative factors associated with stress.[2]

Considering that many patients with cardiovascular diseases have concomitant diseases and often lead a sedentary lifestyle, the relevance of preventive work of medical workers is constantly growing.

The purpose of the study is to consider the features of the organization of activities in the field of prevention of cardiovascular diseases.

MATERIALS AND METHODS

In the process of writing the work, there were research sources in the field of considering the problem of overcoming the consequences of cardiovascular diseases and their prevention. Comparative, comparative and analytical methods were used to analyze the data obtained.

KEYWORDS:
Cardiovascular diseases,
Prevention,
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RESULTS

Prevention of cardiovascular diseases and the directions of work of medical workers in this area represent a very important aspect in the field of preserving the health of the nation. Among the measures of primary prevention, it is necessary to highlight the fight against bad habits of patients, diet therapy and reduction of physical inactivity.[3]

Giving up bad habits is one of the main directions of primary prevention of this group of diseases. While the level of cigarette use has significantly decreased worldwide, the advent of electronic cigarettes has posed new challenges in the field of CVD prevention, especially among the younger generation.[4] E-cigarettes, initially advertised as a safe alternative and a "bridge" to quitting smoking, lead to significant exposure to toxic compounds, including nicotine, propylene glycol and glycerin, and are associated with increased morbidity and mortality from cardiovascular diseases.

Electronic cigarettes not only negatively affect the cardiovascular system, increasing arterial stiffness and the risk of hypertension and the formation of free radicals, but also affect the appearance and development of various forms of pneumonitis, which are better known as caused by vaping. lung damage. Therefore, clinicians should advise patients to avoid using electronic cigarettes.[5]

Among the directions for the prevention of cardiovascular diseases should also be called diet therapy. Since the indicators of overweight and obesity exceed two-thirds of the adult population of the country, strategies for achieving a healthy body weight are mandatory. Cardiovascular diseases account for the majority of morbidity and mortality among obese people, with more than two-thirds of deaths due to high body mass index (BMI), mainly due to coronary heart disease (CHD). Although there is a clear link between obesity and all-cause mortality and CVD, a higher BMI is also associated with an increased risk of aortic valve stenosis, AF, ischemic stroke and abdominal aortic aneurysms.

Despite significant efforts to follow a healthy diet and daily recommendations for physical activity, many obese people are still at significant risk of morbidity and mortality from CVD. For adults with a high BMI who have concomitant diseases associated with obesity that do not respond to pharmacotherapy and behavioral treatments, it is proposed to use bariarthric surgery. This method helps to reduce body weight by 50%, and with it the threat of heart failure.[6]

The growing adoption of mobile healthcare technologies can expand the range of patient care services and improve outcomes related to cardiovascular diseases. Two specific areas of cardiovascular disease prevention focused on mobile health integration are physical activity and weight loss. In a systematic review and meta-analysis in 2020, which examined the effect of text messaging interventions on physical activity, text messaging interventions resulted in higher objectively measured physical activity after the intervention compared to that in control groups.[7]

Similarly, a recent systematic review evaluated the impact of text messaging on behavioral change interventions for weight control. According to this analysis, behavioral modification interventions using text messages resulted in significantly greater weight loss (-2.3 kg) and weight maintenance compared to placebo groups.

Evidence in favor of proper sleep hygiene as a means to achieve optimal cardiovascular health continues to accumulate. In fact, new data from the British Biobank suggests that healthy sleep can reduce the risk of coronary heart disease and stroke by 34%. On the other hand, sleep disorders can negatively affect the outcomes of cardiovascular diseases. One important example is the high prevalence of AF in people with sleep apnea.

The benefits of physical activity cannot be overestimated, and to optimize the health of the cardiovascular system, compliance with recommendations that include at least 150 minutes of moderate intensity or 75 minutes of high intensity exercise weekly is required. This applies to all ages, since low levels of cardiorespiratory fitness and obesity in adolescence are associated with cardiovascular diseases later in life.

In addition to its role in preventing the development of cardiovascular diseases, physical activity also plays a crucial role in reducing complications associated with various cardiovascular diseases. In patients with AF, physical activity and a higher level of cardiorespiratory fitness were associated with a lower long-term risk of cardiovascular disease and overall mortality.[8]

Social determinants of health, including differences in income and education, are known risk factors for cardiovascular diseases. For more than one million Danish employees, a low level of education was associated with a higher risk of cardiovascular disease and mortality from cardiovascular diseases. In extreme cases, when stress from these social determinants transforms into psychological distress and depression, the detrimental effect on the risk of cardiovascular diseases increases. A recent working group of the European Society of Cardiology concluded that depression is associated with a 30% increased risk of coronary heart disease in the future.

DISCUSSION

One of the directions of prevention is secondary prevention with the use of antiplatelet agents and anticoagulants.

The role of aspirin therapy in primary prevention has undergone a complete paradigm shift over the past few years, culminating in the adoption in 2019 of the ACC/AHA recommendations for the prevention of cardiovascular diseases, which recommended considering its use only among very high-risk individuals (COR IIb, LOE A). In 2020, the role of long-term aspirin in secondary prevention of ASCVD was also questioned, despite the recommendation of COR I, LOE A for its use in all patients with coronary heart disease, if there are no contraindications.[9]

In certain situations, including immediately after acute coronary syndrome (ACS) or percutaneous coronary intervention (PCI), the use of aspirin remains indisputable. However, despite the current recommendation of the European Guidelines for the Secondary Prevention of Chronic Coronary Syndrome, its lifelong use in all these patients may not be required. This is especially true for those people who are simultaneously taking a P2Y12 inhibitor or anticoagulant therapy.[10]

Recent trials of early discontinuation of aspirin after PCI or among patients with secondary prophylaxis receiving oral anticoagulants for indications such as atrial fibrillation (AF) do not provide evidence of an increased risk of ischemia while one antiplatelet remedy is prescribed. However, it was subsequently proved that among patients with AF and recently undergone ACS or PCI, the benefit of aspirin as part of dual antiplatelet therapy was lost after 30 days due to increased bleeding.

Researchers recommend using triple antithrombotic therapy for up to 1 week (1 month when the risk of ischemia exceeds the risk of bleeding) for patients who need anticoagulant therapy after PCI, followed by switching to a new oral anticoagulant using single antiplatelet therapy.[11]

Accordingly, it can be concluded that it is necessary to pay attention to those patients who are more at risk of harm from concomitant aspirin therapy than they benefit from it.

There are also recommendations in the literature on the use of anti-inflammatory drugs as part of the prevention of CVD. In one study, the results of reducing ischemic cardiovascular events with the use of colchicine were demonstrated. Based on the data of a randomized trial, the authors noted that outcomes such as cardiovascular death, spontaneous, non-procedural myocardial infarction, ischemic stroke or coronary revascularization caused by ischemia were significantly lower among those who received colchicine compared with placebo. In addition, the authors pointed out that the benefits of colchicine appeared early and continued to grow until five years of treatment.

However, another study noted that colchicine therapy was also associated with an increased risk of non-cardiovascular death and higher rates of side effects, including myalgia and gastrointestinal intolerance, which led to discontinuation of medication in 15% of cases during the introductory phase. In addition, it is unclear whether colchicine had a greater effect in patients with higher levels of systemic inflammation, since markers of inflammation were not reported. Further research will need to determine which people will receive a net clinical benefit from anti-inflammatory therapy, such as colchicine, for primary and secondary prevention of cardiovascular diseases.

The optimal state of the cardiovascular system, which is determined by the control of several behavioral factors and factors of cardiovascular diseases, such as diet, BMI, smoking, physical activity, blood pressure, cholesterol and glucose, is associated with a lower risk of hypertension. However, in most countries of the world, many of these factors are poorly or suboptimally controlled from an early age; this has prompted recommendations to change and prioritize earlier risk assessment.

In adults aged 40-75 years with an estimated 10-year risk of developing CVD < 10% and ≥10%, treatment with drugs to reduce blood pressure is recommended at blood pressure ≥140/90 mm Hg and ≥130/80 mm Hg, respectively. Since the age of onset of hypertension correlates with the subsequent risk of cardiovascular diseases and mortality, early control can help reduce the risk of developing and progressing cardiovascular diseases and should be determined by the individual risk of developing cardiovascular diseases and other concomitant diseases, including age, diabetes and chronic kidney disease.[12]

In a recent multiethnic cohort study, there was a stepwise increase in the presence of calcium in the coronary artery and the risk of developing CVD with an increase in systolic blood pressure above 90 mm Hg. Previously, the detection of hypertension, especially in young people, did not lead to treatment, because priority was given to lifestyle and behavior changes, and many do not dare to start taking lifelong medications at an early age. This is especially evident in women who may later develop cardiovascular disease, but they had hypertension earlier. Now that there is more data indicating the importance of early blood pressure monitoring to prevent the development of atherosclerosis and the progression of cardiovascular diseases, prevention strategies should be started at an early age.

Among the directions of preventive work in the field of cardiovascular diseases should be called measures to reduce cholesterol.

In 2018 and 2019, the American and European cholesterol guidelines were published, which provided recommendations for managing the risk of CVD by reducing low-density lipoprotein cholesterol (LDL-C). Until 2020, therapy with statins, ezetimibe and other drugs was the main treatment used to reduce the risk of cholesterol.

Later in 2020, a study was completed to determine the effect of omega-3 carboxylic acid (4 g/day) cardiovascular outcomes in people taking statins with atherogenic dyslipidemia and high cardiovascular risk. In addition, the results of two other treatments for elevated LDL-C levels were published in 2020. In the first, the researchers included patients with ASCVD or the equivalent risk of ASCVD from Orion-10 and Orion-11 and randomized them to receive inclisiran, which inhibits liver failure. In patients receiving injections of inclisiran every 6 months, the level of LDL-C decreased by about 50%, with a favorable safety profile noted only with side effects at the injection site.[13]

It is known that cardiovascular diseases are the main cause of pregnancy-related mortality. Cardio-obstetrics focuses on the prevention, early detection and proper treatment of cardiovascular diseases in order to avoid cardiovascular complications during pregnancy. By maintaining the health of the cardiovascular system and appropriately eliminating heart diseases during pregnancy, including hypertensive disorders, cardiomyopathies, arrhythmias, thromboembolic diseases, aortic diseases and cerebrovascular diseases, a cardio-obstetrician can work to prevent adverse pregnancy outcomes and reduce maternal morbidity and mortality rates worldwide.[14]

Also, understanding the problems associated with the management of patients at risk of cardiovascular diseases and cancer remains a top priority for both specialties, since they are the first and two leading causes of death worldwide, respectively. The emergence of cardioncology as a subspeciality in cardiology has filled a necessary gap and improved the treatment of those people who have survived cancer treatment, but now face an increased risk of mortality from cardiovascular diseases and cardiovascular diseases such as heart failure and arrhythmias. Ultimately, if the profiles of

risk factors for cardiovascular diseases are optimized through lifestyle, behavioral and pharmacological interventions, the results of treatment of both CVD and oncology will improve.

The COVID-19 pandemic has also opened a new direction in the prevention of cardiovascular diseases and the involvement of patients in digital health in 2020. One example is the approval of telemedicine services for the provision of cardiological rehabilitation services as part of a public health emergency COVID-19 by Medical Care Centers. This made it possible to promote secondary prevention of cardiovascular diseases using heart rehabilitation programs at home.

CONCLUSION

Recommendations for the prevention of CVD are constantly evolving, as new data are published every year, changing the practice. In 2020, significant progress was made in the field of prevention of cardiovascular diseases. Systematically implementing the necessary recommendations, doctors can use various techniques in the field of changing the lifestyle of patients, applying the necessary pharmacological interventions and other prevention methods necessary to achieve optimal health of the cardiovascular system.

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