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Research Article

VACCINATION FOR COVID -19 PATIENTS WITH ARTERIAL HYPERTENSION

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ABSTRACT

Cardiovascular disease (CVD) is the leading cause of death worldwide: no other cause causes as many deaths each year as CVD.

An estimated 17,9 million people died from CVD in 2016, accounting for 31% of all deaths worldwide. 85% of these deaths were due to heart attack and stroke. Most cardiovascular diseases can be prevented by addressing risk factors such as tobacco use, unhealthy diet and obesity, physical inactivity and harmful use of alcohol through population-wide strategies [1].

In Uzbekistan, the risk of premature death (among the population aged 30-69 years) from the four major NCD groups is approximately 31%; CVD is the leading cause of death. A quarter of adults aged 18-64 and almost a third of adults aged 40-64 are at high risk of having a heart attack or stroke within the next 10 years. Men are particularly at risk for cardiovascular risk given their tobacco use and the harmful use of alcohol. In general, men tend to underuse health services; blood pressure in this population is also under-controlled [2].

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KEYWORDS

As tobacco use, unhealthy diet, obesity and physical inactivity.

INTRODUCTION

In Uzbekistan, the risk of premature death (among the population aged 30-69 years) from the four major NCD groups is approximately 31%; CVD is the leading cause of death. A quarter of adults aged 18-64 and almost a third of adults aged 40-64 are at high risk of having a heart attack or stroke within the next 10 years. Men are particularly at risk for cardiovascular risk given their tobacco use and the harmful use of alcohol. In general, men tend to underuse health services; blood pressure in this population is also under-controlled [2].

Timely detection and correction of risk factors (RF) of CVD is the main direction in preventing the development of diseases and complications of the cardiovascular system (CVS). CVD risk factors are numerous in modern society and are associated with urbanization. FR can be classified as follows way:

Biological determinants or factors: advanced age; male gender; genetic factors contributing to dyslipidemia, hypertension, glucose tolerance, diabetes mellitus (DM) and obesity.

Anatomical, physiological and metabolic (biochemical) features: dyslipidemia; arterial hypertension (AH); obesity and the nature

of the distribution of fat in the body; DM. Behavioral (behavioral) factors: eating habits; obesity, as a factor in the development of IHD; smoking; insufficient physical activity, or physical activity exceeding the adaptive capacity of the organism;

alcohol consumption; disease-causing behavior coronary arteries [3] . AG is one of the most important modifiable risk factors. It is estimated that 46% of adults with hypertension are unaware of the presence of the disease, of which 30.8 % are men and 30.3% women. Less than half (42%) of adult patients with hypertension are diagnosed and treated. Approximately one in five (21%) hypertensive adults have the disease under control. Hypertension is one of the leading causes of death worldwide. A 33% reduction in the prevalence of hypertension between 2010 and 2030 is among the global targets for noncommunicable diseases. Individuals with low educational status suffer from arterial hypertension more often than men and women with higher education [4,5] .

On December 31, 2019, the World Health Organization was informed of the discovery of cases of pneumonia caused by an unknown pathogen, on January 3, Chinese authorities reported 44 cases of pneumonia to WHO in Wuhan City, Hubei Province . The pathogen turned out to be a new coronavirus (now known as SARS-CoV-2, formerly under the temporary name 2019-nCoV), which had not previously been detected in the human population. On January 30, 2020, WHO declared a global health emergency due to the outbreak, and on February 28, 2020, WHO upgraded its global risk assessment from high to very high. On March 11, 2020, the epidemic was declared a pandemic. A pandemic is dangerous because the simultaneous infection of many people can lead to an overload of the healthcare system with an increased number of hospitalizations and deaths. Health systems may not be ready for an unusually large number of seriously ill patients. People of all ages are affected, and the median age of people

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with SARS-CoV-2 infection is 50 years. Severe forms of the disease are more common in older people over the age of 60 with concomitant diseases. According to the World Health Organization, more than 516 million cases of COVID-19 and approximately 6.25 million deaths have been reported worldwide. The United States has the highest number of reported infections and deaths in the world. India, Brazil, France and Germany have the highest number of infections after the US. Brazil, India, Russia and Mexico have the most deaths after the US [6,7,8].

As of today, June 19, 2022, 239,525 cases of COVID-19 coronavirus infection have been recorded in Uzbekistan. This is 0.04% of the total number of infected. Unfortunately, today 1,637 people have already died in Uzbekistan, the mortality rate is 0,68%. 237,599 people have been completely cured of the virus, recovery is 99,20%. Uzbekistan ranks 106th in terms of the number of infected people worldwide [9].

Vaccine against COVID 19 - a vaccine that causes the formation of acquired immunity against coronavirus infection COVID-19 caused by a coronavirus SARS-CoV-2. As of August 19, 2021, vaccines approved by the World Health Organization for emergency use include Pfizer/BioNTech, Moderna, AstraZeneca, Johnson&Johnson, Sinopharm and Sinovac . Vaccination plays an important role in achieving what is known as herd immunity. The safety of vaccines is studied during large clinical trials on tens of thousands of people, then side effects are tracked by safety monitoring systems. A preprint study by an independent team of scientists in St. Petersburg concluded that the vaccine was 81% effective in preventing hospital admissions and 76% effective in protecting against severe lung injury. There are 4 approved vaccines in the UK: Pfizer/BioNTech, Moderna, AstraZeneca and Johnson&Johnson. According to the Yellow Card system, until August 11, 2021, there were 3-7 reports of possible side effects per 1000 vaccinations. The US Centers for Disease Control and Prevention has released several studies on the effectiveness of vaccinations. Thus, in a prospective study of 3950 medical workers, the effectiveness of mRNA vaccines (Pfizer and Moderna) was 90%. In another study, the vaccine reduced the risk of hospitalization among people over 65 by 94%. In a third study, vaccines were 74.7% effective at preventing virus infection in nursing home residents at the start of the vaccination program. 66.3% of the world's population has received at least one dose of the COVID-19 vaccine. Worldwide, 11.99 billion doses have been administered and there are currently 7.93 million doses administered daily. Only 17.8% of people in low-income countries received at least one dose[10,11 ,12] .

Vaccination against coronavirus in Uzbekistan began on 04/06/2021. The following COVID-19 vaccines have been approved in Uzbekistan:

Moderna

Oxford /AstraZeneca

Pfizer/BioNTech

Sinovac

Sputnik Light

Sputnik V

ZF2001

To date, in Uzbekistan, 57% of the population is covered by the vaccine [13]

First descriptions of patients with coronavirus infection, as well as previous experience management of patients infected with MERS- CoV have given

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grounds to discuss that the presence of concomitant diseases, including hypertension, is associated with an increased risk of adverse outcomes [14] . According to the results of the meta-analysis, combining the data of 8 works (46248 patients), most common comorbidity became AH (17%), along with DM (8%), CVD (5%) and bronchopulmonary pathology (2%) [15]. Similar conclusions were reached by the authors of another meta-analysis, which included 6 studies with a total of 1527 patients (AH 17.1%; CVD 16.4%; DM 9.7%). However, among patients with severe requiring transfer to the intensive care unit and intensive care unit (ICU), AH was registered in 28.8% versus 14.1% among people with severe flow observed in a normal ward. Nearly a three-fold ratio was also established for CVD and SD. F. Zhou et al published the results retrospective analysis of 191 laboratory cases confirmed coronavirus infection with a known outcome, registered in two specialized hospitals in Wuhan between December 29 and January 31, 2020 [16] . The most frequent concomitant disease in patients in this the sample had hypertension, and deaths were more often recorded in individuals with concomitant diseases (AH 48% versus 23%). According to the results of one-factor analysis, the presence of hypertension is associated with a threefold increased risk of death. C among significant predictors of lethal outcome turned out to be older age, higher score on SOFA scale. The data of other authors also testify to a more severe course of coronavirus infection in older people.

According to the results of a retrospective analysis of 788 cases conducted by J. Lian et al., a serious condition was recorded in 16.2% of elderly patients versus 6% among younger patients, and an extremely severe condition was recorded in 8.8% and 0.8%, respectively [17] . Finally, G. Lippi et al conducted a meta-analysis (13 articles) to assess the relationship between hypertension and the severity of infection caused by the virus

SARS-CoV2. They concluded that the presence of hypertension, regardless of other factors, including age, was associated with a 2.5-fold risk of developing severe COVID-19 infection, as well as a comparable risk of death. [18] .

A significant proportion of those hospitalized, including those in serious and extremely serious condition, are patients with CVD and concomitant comorbid pathology. The combination of CVD and a new coronavirus infection is one of the most unfavorable risk factors for complications, especially for people over the age of 65 and those with comorbid diseases - obesity, type 2 diabetes mellitus (DM), bronchopulmonary pathology and immunosuppressive conditions.

Taking into account the prevalence of CVD among patients with COVID-19 and the high incidence of complications, including severe ones, associated with the diverse damaging effect of the SARS-CoV-2 virus on the cardiovascular system, as well as taking into account the problems in the management of such patients, it is necessary to correctly assess the possibility of vaccination in most patients with CVD as the only preventive measure currently helping to avoid the development of complications [19,20]. According to representatives of international professional associations of cardiologists, diabetologists , and preventive medicine specialists, vaccination against influenza and new coronavirus infection is indicated for all patients with a high risk of developing complications, which

primarily include patients with CVD [21-24] . According to the World Health Organization, patients with CVD

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represent an important target group for vaccination against respiratory viruses, including SARS-CoV-2,

since they have a high risk of death due to both infectious diseases and CVD decompensation against the background of an infectious

process[25]. Vaccination is an effective and affordable method of preventing infectious diseases, including COVID-19, which reduces possible risks, which can serve as additional help in preventing the development of new fatal and non- fatal cardiovascular complications of a new coronavirus infection [26].

Thus, given the fact that coronovirus infection has a more severe course in patients with concomitant diseases such as hypertension, diabetes mellitus and others, and also considering the complications of hypertension, such patients are especially recommended to be vaccinated.

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