RESULTS OF ANALYSIS OF EPIDEMOLOGICAL INDICATORS OF VIRAL HEPATITIS C IN REGIONS OF THE WORLD AS PART OF ACTIVITIES TO IMPROVE PHARMACEUTICAL PROVISION FOR PATIENTS

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Viral hepatitis affects hundreds of millions of people worldwide, the most dangerous of which are hepatitis B and C.

The aim *of our study was to study the prevalence and incidence of HC in the world and in Ukraine, as well as approaches in pharmacotherapy of HC to further identify effective measures to eliminate HC and improve pharmaceutical supply to patients in HC in Ukraine. The materials of the study were WHO statistical reports, national country reports, national recommendations for pharmacotherapy, the analysis of which was carried out by methods of generalization of information, analytical, comparative method.*

Results of the research. *According to the WHO segmentation, the most frequent cases of HC are found in the populations of the Nordic-Mediterranean region (15 million cases) and the European region (12 million cases). Four countries in the world account for more than 40 % of all people infected with HC, two of which are in the Nordic-Mediterranean region (Pakistan – 7.2 and Egypt – 5.6 million people, respectively). The incidence of HC in Western Europe is up to 0.5 %, while in Northern Europe it is up to 3.3 %. Currently, the highest number of first-time HC infections in 2019 was registered among the populations of Ireland, the United Kingdom and Finland. The lowest incidence rates were found in Romania, Italy and Greece. It has been established that males aged 20–45 years prevail among those infected with HC.*

It was found that the prevalence of HC in Ukraine in 2015 was 3 %, according to 2020 – 5 %, with the annual number of newly recorded cases of HC increases by at least 7 %. According to the gender distribution, the ratio is on average 1.3 patients among men to 1 patient among women.

An analysis of international guidelines for the pharmacotherapy of HC has shown that their latest revisions contain new direct-acting antiviral drugs, namely combinations of drugs such as glecaprevir/pibrentasvir and sofosbuvir/velpatasvir. The standard of HC treatment in Ukraine, approved in January 2021, is more in line with the recommendations of the WHO (2018), AASLD (2019) and EASL (2020) than the 2016 treatment protocol.

Conclusions*. The annual rate of HC infection in the world remains very high and is estimated at 1.5 million people. Regular revision and updating of standards of HC treatment with the latest direct-acting antiviral drugs, annual increase in the number of people in the world and in Ukraine who receive timely diagnosis of HCV and its full treatment are effective steps to achieve the goal of eliminating viral hepatitis*

Keywords*: viral hepatitis C, epidemiological indicators of HC, WHO European Region, pharmacotherapy*

1. Introduction

Viral hepatitis affects hundreds of millions of people worldwide. There are five main types of viral hepatitis – A, B, C, D and E, among which the most dangerous are hepatitis B and C. In total, they kill 1.1 million people each year and affect about 3 million new patients worldwide. A distinctive feature of these diseases is the asymptomatic initial period, which causes a person's ignorance of his disease [1]. The only way to detect hepatitis C (HC) and hepatitis B is through testing. For a long time without manifesting itself, viral hepatitis causes complications such as cirrhosis of the liver, and later – hepatocellular carcinoma. More than 60 % of cases of liver cancer are associated with late testing and treatment of viral hepatitis B or C.

The dangers of these infections are constantly reminded by the World Health Organization (WHO), urging not to delay combating viral hepatitis. And one of the steps towards the global fight against these diseases was the adoption in 2015 of the Global Health Sector Strategy for Viral Hepatitis, which sets goals to reduce the number of new cases of hepatitis B and C by 90 % by 2030 and reduce the number deaths by 65 % by 2030 [1, 2]. Ukraine has also joined the Global Strategy for the Elimination of Viral Hepatitis, setting ambitious targets for reducing the incidence and mortality of HC.

There are already examples of positive implementation of this strategy in countries with high prevalence and incidence of HC. Egypt is one of the countries with

the highest burden of HC infection in the world. However, since 2018, thanks to the government program and local production of generic drugs and, consequently, reducing the cost of treatment, significant progress has been made in eliminating hepatitis. During 2017–2018, a nationwide survey of the country aged 18 and over was conducted in Egypt to provide free treatment to those infected. By the end of 2019, almost 60 million people had been tested and 4 million had started treatment [3]. This is one of the largest health measures to date to eliminate HC. This example shows the relevance of timely detection and treatment of HC not only among at-risk groups, but also among the entire population of the country in the desire to achieve the elimination of HC.

There are enough publications in the professional literature dedicated to the provision of pharmaceutical care to patients with viral hepatitis, which indicates the relevance of the topic. Much attention is paid to diagnosis, pharmacotherapy, market research of antiviral drugs, as well as all possible measures to promote the elimination of HC in each country and in the world as a whole.

An analysis of periodicals found that all authors emphasized the serious global burden of HCV in their publications, especially among countries that host immigrants, such as Canada, where there is a lack of information on differences in the prevalence of HC virus among immigrant groups for the application of microelimination measures [4]. The HC treatment cascades among immigrants and permanent residents of Canada prior to the introduction of direct-acting antiviral pharmacotherapy were quantified and found that viral HC was more prevalent among permanent residents than immigrants in general. However, immigrants from endemic countries are an important subgroup to consider when screening and liaising with health facilities in the future. The authors report that these data were obtained before the introduction of new drugs and are a guide for further research and evaluation of treatment programs and surveillance measures [4].

Much attention is paid to studies of the effectiveness of antiviral HC therapy. Thus, some studies [5] indicate a significant impact of direct-acting antiviral therapy in recent years on the prevalence of HC. Achieving the goal of eliminating HC is impossible without state-level support, and accurate information on the epidemiology of hepatitis C infection is essential for the development of a national and regional plan.

According to the analysis of the publication of the authors from Spain, it was found that the effectiveness of expanding the scope of free treatment with direct-acting antiviral drugs and the possibility of achieving elimination is confirmed [6].

Researchers in their article [7] estimate the prevalence of HC in the adult population of the United States by sex and race, using data from 1999–2016. The publication noted a higher prevalence of the disease among men than in women in all USA states, and that the number of HC infections is increasing among young people who use injecting drugs.

An analysis of recent publications [8–13] on the problem found that many authors have studied the prevalence of HC among certain categories of citizens (injecting drug users, prisoners, pregnant women) [14–16]. Indeed, one of the most common causes of this disease is the use of injectable drugs. Syringe exchange programs and medication treatment of opioid use disorders are science-based strategies to reduce the transmission of HC virus to young people who inject drugs. It is noted that the analysis of morbidity is found only in the global reports of the European Center for Disease Prevention and Control, as well as in WHO reports.

The WHO constantly reminds of the dangers of HC, emphasizing the importance of measures to eliminate viral hepatitis by the country's leadership. This goal could be achieved only by knowing the scale of the danger in each country and keeping constant statistics on the epidemiology of the disease.

The aim of the research was to study the prevalence and incidence of HC in the world and in Ukraine, as well as approaches in pharmacotherapy of HC in order to further identify effective measures to eliminate HC and improve the pharmaceutical supply of HC patients in Ukraine.

2. Planning (methodology) of research
To achieve this goal, we have developed an algorithm for conducting research, consisting of eight stages (Table 1).

Table 1

Algorithm of research

Stage	Description	The obtained result
Stage 1	Defining goals, objects, objectives and research methods	Analysis and systematization of data from international sources and publications
Stage 2	Analysis of HC prevalence, morbidity and mortality rates in WHO regions	Estimation of the extent and prevalence of HC in the world
Stage 3	A study of the prevalence and incidence of HC in the WHO European Region	Comparison of prevalence indicators in different regions of Europe, establishing the correspondence of prevalence and morbidity indicators, determining the trend of HC incidence in the WHO European Region, processing of experimental data
Stage 4	Analysis of the gender distribution of HC patients in the world	Establishing the trend of gender distribution of HC patients in the world during 2017–2019
Stage 5	Study and analysis of HC prevalence and incidence rates in Ukraine	Establishing compliance with the prevalence and incidence of HC in Ukraine, processing of experimental data
Stage 6	Analysis of the gender distribution of HC in Ukraine	Determining the compliance of the gender distribution of HC in Ukraine with the indicators of the WHO European Region
Stage 7	Analysis of international recommendations for HC pharmacotherapy	Determining compliance with international recommendations and the protocol of Ukraine on HC treatment
Stage 8	Registration of research results	Generalization of conclusions to determine further prospects

3. Materials and methods

The study included WHO statistical reports, Polaris global study report, national country reports on HC prevalence and incidence, international WHO guidelines, the American Association for the Study of Liver Diseases (AASLD), the European Association for the Study of the Liver (EASL) for HCV infection and the standard medical care at HC in Ukraine [17–22]. The analysis of these materials was carried out by methods of generalization of information, analytical, comparative method.

4. Research results

Analysis of HC prevalence has shown that it is prevalent worldwide but is most common in the Eastern Mediterranean and the WHO European Region, where the prevalence is 2.3 % and 1.5 %, respectively. It is established that in other regions these indicators range from 0.5 % to 1.0 % [23]. In absolute terms, at least 12 million people in the European Region suffer from HC, approximately 10 million people suffer from HC in the South-East Asia and the Western Pacific, and the number of people suffering from chronic hepatitis C in Africa and the Americas. it is estimated at 9 and 5 million people, respectively. The eastern Mediterranean region has more than 15 million infected [24].

It should be noted that four countries in the world account for almost 40 % of all people infected with HC, and two of them belong to the Eastern Mediterranean region. The WHO estimates that China (West Pacific) has the highest number of HC cases in the world (almost 10 million people have been diagnosed with HC). The following countries are the following in terms of number of patients: Pakistan (Eastern Mediterranean region) – 7.2 million people, India (Southeast Asian region) – 6.2 million people and Egypt (Eastern Mediterranean region – 5.6 million people) [18, 24].

An analysis of WHO statistics on the number of new infections and deaths from HC in 2019 showed that the highest number of newly detected cases of HC infection was recorded in the Eastern Mediterranean, which is almost 2 times higher than in Africa, Asia. and the Western Pacific region (Fig. 1).

The lowest number of cases was recorded in the American region. It should be noted that the largest difference between the number of newly registered cases and the number of fatalities is also observed in the Eastern Mediterranean region (15.2 times), the smallest – in the American region (2.16 times). In our opinion, this discrepancy is due to an imperfect system of statistical accounting and, most likely, the fact that HC is not mentioned by doctors as the main cause of death.

The WHO European Region, to which Ukraine belongs, was selected for further research. In total, the region includes 53 countries, which according to the United Nations (UN M.49 standard) are grouped into Western, Eastern, Southern and Northern Europe. It should be noted that statistics on the incidence of HC are collected in many European countries and updated annually, while data on the prevalence of HC in European countries are publicly available for the period up to 2015 [25].

According to the analysis of WHO statistics, it is determined that the prevalence of HC in 2015 is much lower in Western Europe and is, on average, 0.5 % of patients in the total population. The lowest prevalence of HC in this region was recorded in the Netherlands (0.1 %) and Austria (0.2 %). In the countries of Southern Europe, the average is 0.7 %. The highest prevalence rates were recorded in Eastern Europe, in particular Romania (3.2 %), Ukraine (3.0 %). (Fig. 2).

According to the WHO, only 20 % of patients know about their diagnosis, so it can be argued that the real prevalence of the disease is much higher [26]. Accordingly, low levels of testing and lack of public awareness of viral hepatitis led to limited access to treatment and care.

The next stage we analyzed the incidence of HC in the countries of the WHO European Region for the period 2015–2019 [25, 27]. The lack of a clear, stable trend of decreasing or increasing the number of new cases of diagnosing the disease has been determined. Thus, there is a decrease in morbidity during the study years in Belgium, Denmark, Ireland, Norway and Poland. It should be noted that the decline is not gradual, but abrupt (for example, in Ireland, in 2017/2016 there was a decline in HC incidence by 4.7 %, and in 2019/2018 – by 20.6 %). Only in Malta there is a steady increase in the number of new HC cases, which we believe is due to increased coverage of HC testing as part of a global strategy to eliminate hepatitis.
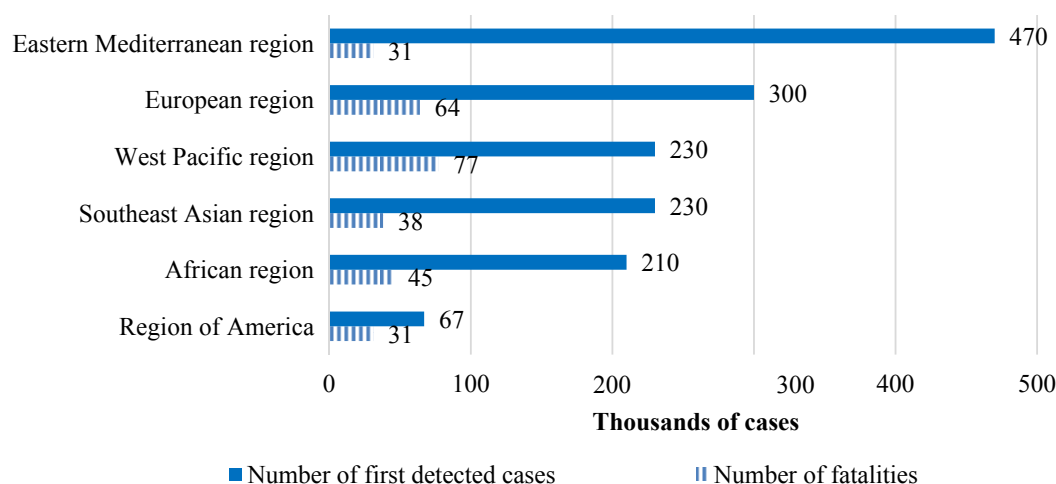

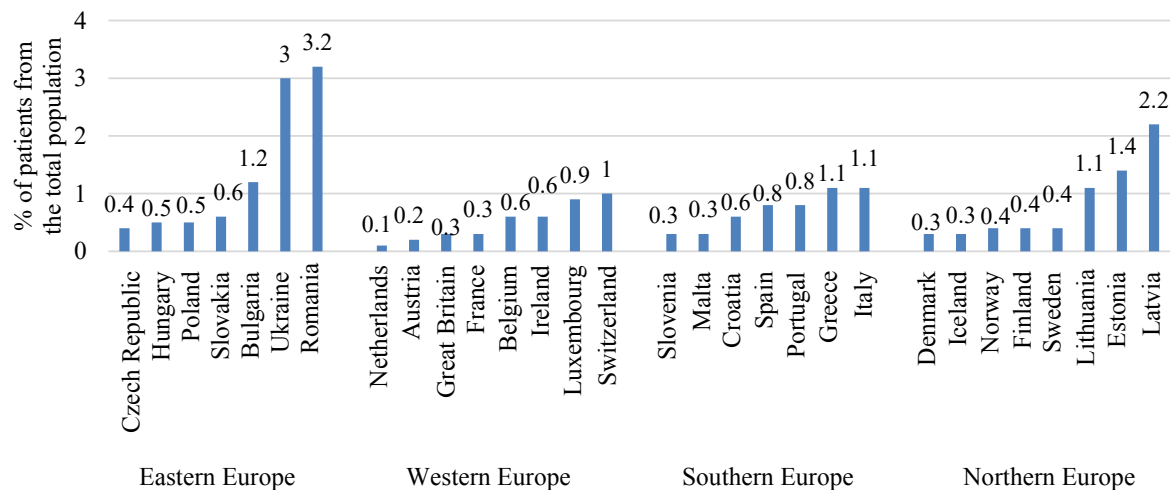Fig. 1. HC morbidity and mortality in WHO regions, 2019

Fig. 2. Prevalence of HC in the WHO European Region, 2015

The analysis of the European Center for Disease Prevention and Control (2019) revealed that in Romania, Malta, Luxembourg, Slovenia and Bulgaria, the absolute number of newly registered new cases in the country does not exceed 100 cases per year. While in Latvia, the Czech Republic, Finland, Belgium, Spain and Sweden, the number is between 1,000 and 1,500 per year. The highest number of first infected HC in 2019 among European countries was observed in the UK and it is 17,738 people, who is primarily diagnosed due to the effectiveness of the national program for testing for viral hepatitis.

In Fig. 3 data are presented on the number of registered new cases per 100,000 population in 24 countries in the European region.

According to the analysis of the gender distribution of HC patients in the world, it was found that men predominate among those infected with HC (Fig. 4).
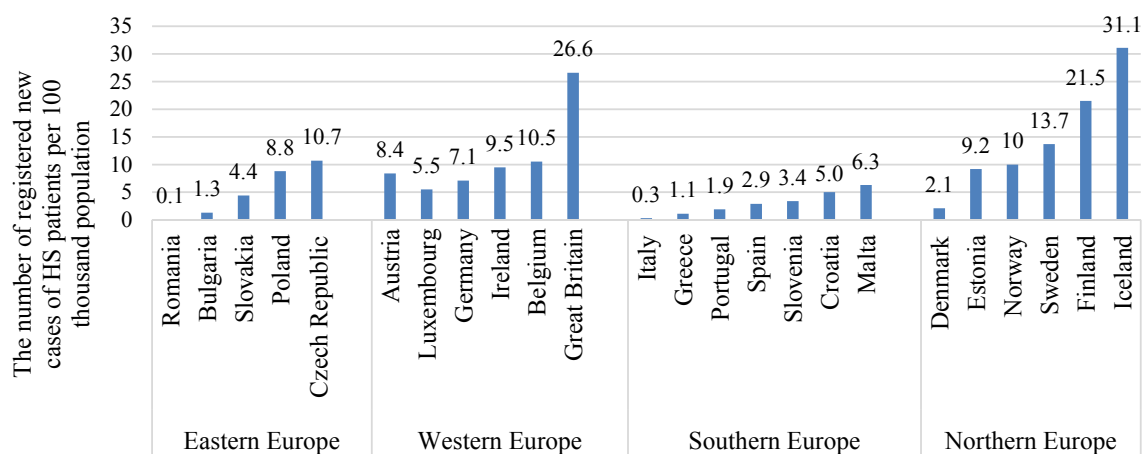

Fig. 3. Number of registered new HC cases in the countries of the WHO European Region per 100,000 population, 2019
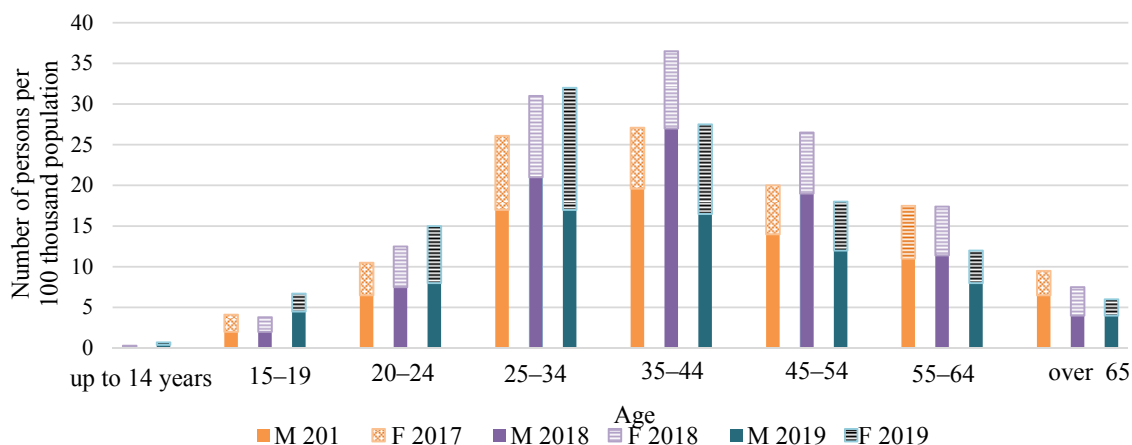

Fig. 4. Age and gender distribution of HC patients in the countries of the European region, 2017–2019

According to the analysis, it was determined that in 2017 the ratio of men to women was 1.87:1, with the highest rates among men aged 35–44 (19.6 cases per 100,000 population) and among women aged 25–34 (9.1 cases per 100 thousand population). In 2018, the ratio was 2.02:1, dominating the number of patients by the age groups remained unchanged: among men 35–44 years – 27 cases per 100 thousand population and among women 25–34 years – 10 cases per 100 thousand population.

In 2019, the incidence of HC in the European region was also higher among men than among women in all age groups. It was found that the most affected age group was the group from 25 to 34 years both among men (17 cases per 100 thousand population) and among women (15 cases per 100 thousand population). The total ratio was 2.05:1. Thus, during 2017–2019 there was a tendency to increase the number of HC cases among men and women by 10 % in favour of men.

The next step is to study the state of the epidemiological situation regarding HC in Ukraine. According to the Center for Medical Statistics of the Ministry of Health of Ukraine, as of 2020, more than 2 million people in Ukraine are infected with HC, which is 5 % of the population, while only 5.5 % of them receive treatment and care [28].

It is established that the prevalence of HC in Ukraine is one of the highest in Eastern Europe and in the WHO European Region as a whole. Thus, in absolute terms, the prevalence is 5,000 people per 100,000 population. Open statistical data in free access by regions of Ukraine are presented until 2017, for the following years statistical information on the whole of Ukraine is presented. It is determined that in 2017 the number of HC cases in Ukraine was 117.9 people per 100,000 population. The tendency to increase the number of cases by 7 % annually is negative [29].

It is noted that prevalence rates vary greatly by region of Ukraine. Thus, Zaporizhzhia and Mykolayiv

regions are leaders in the number of detected HC patients (314.4 and 252.8 persons per 100,000 population, respectively), whose indicators exceed the average number of cases in Ukraine by almost twice. The lowest prevalence rates were recorded in Luhansk, Vinnytsia and Lviv regions (30; 58.6 and 59.5 people per 100,000 population, respectively).

The next step is to analyze the incidence of HC in Ukraine and by region. It is established that during the analyzed period of 2017–2019 the number of newly registered new cases of HC in Ukraine remains at 14.5–15 people per 100 thousand population with slight fluctuations in this indicator in 2018 and 2019 (–0.43 and +0.61 compared to 2017). Noteworthy are the figures for 2020, which are much lower than in previous years, namely the incidence of HC is 9.02 people per 100 thousand population. In our opinion, this is due to the imperfection of the HC patient registration system, the reduction in the number of tests during quarantine restrictions and the introduction of restrictive anti-epidemic measures to prevent the spread of acute respiratory disease COVID-19 in Ukraine. In the regions of Ukraine, the maximum incidence of HC corresponded to the maximum prevalence in Zaporizhzhia and Mykolaiv regions and amounted to 35 and 28.7 per 100 thousand population, respectively. Among all oblasts of Ukraine, the minimum incidence rates are observed in Odesa, Vinnytsia and Zakarpattia regions (from 2.7 to 8.23 per 100 thousand population) (Fig. 5).

According to the results of the analysis of the gender distribution of patients with HC, it was found that in Ukraine, as well as around the world, mostly men get sick [30]. The ratio is on average 1.3 patients among men to 1 patient among women, which differs from the statistics of the European region (2:1). More than 98 % of HC patients in Ukraine are adults over 18 years of age. In recent years, there has been a trend towards an increase in the number of HC patients aged 20 to 35, which we believe is due to an increase in the number of infections among injecting drug users.
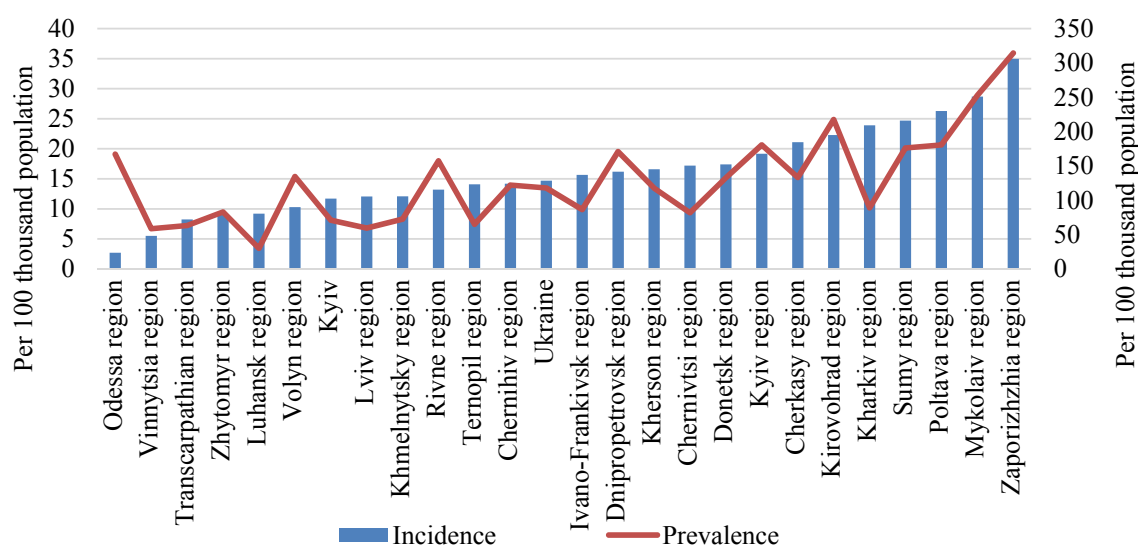

Fig. 5. Incidence and prevalence of HC in the regions of Ukraine, 2017

Given the significant prevalence and incidence of this disease in Ukraine and around the world, the issue of timely and effective pharmacotherapy becomes important. HC has long been considered an incurable disease, and the drugs used to treat it have been expensive, ineffective, and have significant side effects. In recent years, the newest direct-acting antivirals (DAA) have appeared, thanks to which HC could be completely cured with timely and complete therapy. Therefore, the next stage of our study was to analyze the main modern pharmacotherapy regimens used in the world practice of HC treatment.

In addition to the national HC treatment protocols that apply in each country and are of paramount importance as a guide for physicians, the recommendations of such recognized organizations as the EASL and AASLD, and of course the WHO, are important. We considered the international recommendations of the WHO, AASLD, EASL for the treatment of HC viral infection, updated standard of care "Viral hepatitis C in adults", approved by the Order of the Ministry of Health of Ukraine from 15.011.2021, No. 51.

There are 6 main genotypes of HC virus, among which the most common is genotype 1. Thus, according to the Polaris Observatory, in most countries the share of genotype 1 chronic HC is on average more than 50 % [18]. Given the above, we have chosen to analyze the treatment regimen of HC of this genotype, uncomplicated by cirrhosis of the liver. The results of generalization of approaches in treatment are presented in Table 2, drugs are arranged in the order of their appearance on the world pharmaceutical market.

The analysis of international recommendations showed that they are almost completely identical and contain the latest DAA, namely such combinations of drugs as glecaprevir/pibrentasvir and sofosbuvir/velpatasvir. Comparing the medical standards of Ukraine in 2016 and 2021, it should be noted that there has been a significant update of treatment regimens. Thus, the 2021 Standard includes sofosbuvir/velpatasvir, which is used in the WHO and EASL recommendations from 2018. The sofosbuvir/daclatasvir combination is also recommended by the WHO from 2018 and is used in the updated standard of Ukraine, although not recommended by the latest versions of EAS recommendations. AASLD. Glecaprevir/pibrentasvir in Ukraine is not specified in

the Standard, although this drug has been registered since August 1, 2020. As the new standard was approved in January 2021 and was developed earlier, this may be one of the reasons for the absence of this drug.

Table 2

Comparative analysis of recommended treatment regimens for HC 1 genotype

Document name/Region, year of adoption	European Association for the Study of the Liver recommendations on treatment of hepatitis C: Final update of the series	Infectious Diseases Society of America Recommendations for Testing, Managing, and Treating Hepatitis C Virus Infection	Guidelines for the care and treatment of persons diagnosed with chronic hepatitis C infection	Order of the Ministry of Health of Ukraine of 15.01.2021 No. 51 "On approval of standards of medical care for viral hepatitis C in adults"
	European countries, 2020	USA, 2019	WHO, 2018	Ukraine, 2021
Pharmacotherapy regimens				
J05AP07+J05AP08 sofosbuvir/daclatasvir	–	–	+	+
J05AP51 sofosbuvir and ledipasvir	–	–	–	+
J05AP53 ombitasvir, paritaprevir and ritonavir	–	–	–	–
J05AP54 elbasvir and grazoprevir	+	–	–	–
J05AP55 sofosbuvir and velpatasvir	+	+	+	+
J05AP57 glecaprevir and pibrentasvir	+	+	+	–

It is noteworthy that the combination of sofosbuvir/ledipasvir is used only in Ukraine, in international recommendations this combination is absent. In addition, it is not recommended for patients with treatment experience.

Resolution of the Cabinet of Ministers of 06.05.2020 No. 350 "Some issues of procurement of medicines, medical devices and their aids purchased in 2020" approved the list of drugs and medical devices purchased from the budget in 2020. According to this resolution, sofosbuvir/ledipasvir and sofosbuvir/velpatasvir, which meets the Ukrainian standard of medical care at HC, are purchased at the expense of the budget. If the doctor prescribes another antiviral drug, the patient will be forced to buy it at his own expense. It should be noted that this is a very heavy burden from an economic point of view and usually the patient does not receive treatment at all, which is negatively reflected in the course of the disease and could lead to serious complications.

5. Discussion of research results

The analysis showed that of all the WHO regions, the Eastern Mediterranean region has the highest number of new HC cases and the lowest number of HC deaths, which does not correspond to the number of infected people. We could assume that in this region the system of fixing the causes of mortality is imperfect. Thus, the authors [6, 9, 13] noted the insufficient level of coverage of the population for testing and timely detection of HC and, accordingly, the problem of reliable identification of causes of death.

In the countries of the WHO European Region, the maximum prevalence of HC is registered among the countries of Eastern Europe, namely in Ukraine and Romania. The lowest prevalence of HC is observed in Western Europe (the highest figure is – 1 %) [17, 18].

On the other hand, the number of newly registered new cases is highest in Iceland (Northern Europe) and the United Kingdom (Western Europe) – 31.1 and 26.6 cases per 100,000 population, respectively. This fact is explained by the functioning of the national program for testing for viral hepatitis in these countries, which allows us to approach the elimination of HC [7, 11]. In Romania (Eastern Europe) and Italy (Southern Europe), 0.1 and 0.3 new cases per 100,000 population were registered. In our opinion, such low rates in countries where the situation with HC remains quite serious are caused by the small number of people undergoing testing, as this is not a mandatory medical examination, and that is why most patients (including those at increased risk of infection) learn about the disease in its later stages.

HC prevalence rates in Ukraine are among the highest in both Eastern Europe and the WHO European Region as a whole. Cases of detection of new HC patients in Ukraine are more common among adults aged 20–45 and mostly males. In general, the most vulnerable age group is 25 to 44 years, there is a gradual decrease in the number of HC infections among the subgroup 35–44 years, and vice versa increase among the subgroup 25–34 years among both men and women.

Annual HC infection in the world remains very high at an estimated 1.5 million people (equivalent to the number of new HIV infections). There are also high rates of deaths each year. Thanks to the WHO strategy and the accession of most countries, the emergence of new DAAs and changes in treatment approaches, mortality rates in the world have stabilized in recent years, treatment of HC patients has increased 10 times, but HC still remains a threat to public health, despite the efforts of some countries, including Ukraine. Updating the standards of HC treatment with the latest DAA, the annual increase in the number of people receiving HC treatment in Ukraine, gives hope for achieving the goal of eliminating viral hepatitis.

A study of existing international guidelines for the treatment of HC has shown that the priority in the treatment are schemes using the latest DAA. Regular, annual updating of foreign recommendations on HC pharmacotherapy by specialists of these countries allows to recommend as a priority the therapy of drugs of recent generations. In Ukraine, unfortunately, updating the standards of medical care for HC is not so common. But the standard of HC treatment in Ukraine, approved in January 2021, is currently much more in line with WHO and EASL recommendations than the 2016 protocol. It was determined that only two of the recommended combinations of drugs for the treatment of HC a patient could receive on a budget, however, all DAAs have a treatment efficiency of more than 90 %.

Study limitations. The main limitations of the study are the lack of statistics on the prevalence of HC in European countries after 2015. The full epidemiological picture of this disease is unknown, because according to the WHO, only 20 % of patients know their diagnosis, so it is likely that real prevalence is much higher [26]. Also, open statistical data on the prevalence and incidence of HC in the regions of Ukraine are presented until 2017, for the following years, information is presented in Ukraine as a whole. This fact limits the conduct of a thorough structural study to determine the need for pharmaceutical care for patients with this pathology at the regional level and the adaptation of national measures to optimize pharmaceutical supply in Ukraine as a whole.

Prospects for further research. Given the social significance of this disease and the possible consequences for the health care system, determining the causes and dynamics of morbidity, mandatory registration of patients with viral HC, detailed registration by sex and age will further contribute to preventive measures among vulnerable populations and ensure timely pharmacotherapy of patients. Also among the promising areas of our study is the analysis of the volume of pharmaceutical care, including at the expense of budget funds.

6. Conclusions

According to the results of the analysis of epidemiological indicators of HC, it is determined that in the European region HC affects at least 12 million people, in the regions of Southeast Asia and the Western Pacific the HC affects approximately 10 million people, and in Africa and the Americas, the number of HC patients is estimated at 9 and 5 million, respectively. The eastern Mediterranean region has more than 15 million infected. According to the WHO, only 20 % of patients know about their diagnosis, so it could be argued that the real prevalence of the disease is much higher. It is also determined that in the European region the ratio of cases among men and women is 2:1, in Ukraine 1.3:1.

The prevalence of HC in Ukraine according to 2015 was 3 %, according to 2020 – 5 %, with the annual number of newly recorded cases of HC increases by at least 7 %.

A comparative analysis of the leading international guidelines for the treatment of HC revealed that the priority in the treatment are schemes using the latest DAA. Recommendations are updated on average every two years.

Thus, a study of the prevalence and incidence of HC in the world and in Ukraine showed that HC is a problem in absolutely all countries. It is not enough to formally join the WHO strategy for the elimination of hepatitis, it is necessary to understand the prevalence and incidence of HC in the country, identify key risk groups, introduce testing of all segments of the population and state support for timely pharmacotherapy of HC patients with new drugs.

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