

BRIEF OVERVIEW OF PATENT INFORMATION ON THE PROBLEM OF PREVENTING AND TREATING MYOCARDIAL INFARCTION

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Summary. The paper presents a brief overview of the dynamics of patenting inventions on the problem of preventing and treating myocardial infarction in the countries of the world community. This aspect of the problem has not been sufficiently reflected in the literature. The countries and international patent offices with the largest number of patents on the research topic have been identified. Inventive activity by year has been reflected. It should be emphasized that patent information is an important part of scientific and technical information, as it reflects the results of research and development work aimed at developing new or improving known methods, devices or substances that are world novel and protected by patents.

Key words: myocardial infarction, preventing, treating.

Relevance. Myocardial infarction is a predominant cause of global death and morbidity. It is characterized by complex pathophysiological mechanisms, including acute coronary artery occlusion, ischemia-reperfusion injury, and subsequent inflammation and oxidative stress. There are advances in early reperfusion therapies, pharmacological interventions, and lifestyle modifications, which have significantly improved survival rates during the acute phase. Nevertheless, myocardial infarction patients remain at substantial long-term risk for adverse outcomes such as heart failure, left ventricular dysfunction, and cardiovascular mortality. Current therapeutic strategies are partially effective but demonstrate notable limitations in long-term myocardial protection and cardiac function improvement [1, 2, 3, 4].

The authoritative english-language database of medical and biological publications of the US National Library of Medicine – PubMed contains more than 40 thousand scientific papers on the problem of preventing and treating myocardial infarction, which indicates the relevance of this problem. However, no patent information reviews on the topic of this article were found in the literature.

The purpose of the work: to analyze the dynamics of patenting inventions issued in countries of the world community on the problem of preventing and treating myocardial infarction.

Materials and methods. To achieve this goal, a patent search was conducted in the PATENTSCOPE database of the World Intellectual Property Organization [5], which provides access to international patent documents in accordance with the Patent Cooperation Treaty (PCT), the European Patent Office (EPO), the Eurasian Patent Office (EAPO), the African Regional Intellectual Property Organization (ARIPO), as well as to patent documents from regional and national collections.

The PATENTSCOPE databases contain more than 93 million patent documents, including 4 million published international applications for inventions filed in accordance with the Patent Cooperation Treaty (PCT). The search data are presented as of August 21, 2025.

Results and their discussion. In the above database, 1,391 patents were identified over the entire study period. Over the past 10-year period, 602 patents were issued, which is 43.3% of the total number (Table 1) and indicates an increase in inventive activity on the problem of preventing and treating myocardial infarction. The highest patenting results were recorded during 2019-2021.

Table 1 – Publication dates and patenting dynamics for the period 2016-2025

Years	Number of patents	Years	Number of patents
2016	39	2021	77
2017	72	2022	58
2018	52	2023	66
2019	85	2024	64
2020	77	2025*	12

* Until August 21, 2025 inclusive.

Table 2 provides information on the number of patents issued in countries of the world community and international patent offices.

Table 2 – Top – 10 leading countries and international patent offices by number of patents issued

Countries	Number of patents issued	Countries	Number of patents issued
China	425	Japan	66
United States of America	187	Australia	63
Republic of Korea	176	Canada	59
Patent Cooperation Treaty	165	New Zealand	30
European Patent Office	110	India	23

An analysis of the data in Table 2 shows that China ranks first in terms of the number of patents issued. It is followed by the United States of America, the Republic of Korea, the Patent Cooperation Treaty and the European Patent Office with a number of patents in the range of 187-110. The other countries listed in Table 2 have a significantly smaller number of patents (from 66 to 23).

The fact that a significant number of patents (275) were issued in international patent offices (PCT and EPO) is noteworthy. This type of patenting allows inventors to increase the possibility of commercializing their developments in other countries.

The largest number of issued patents relate to medicinal products and their compositions for the prevention and treatment of myocardial infarction, as well as to the specific therapeutic activity of chemical compounds or medicinal preparations.

Conclusion. Based on the conducted analysis of patent information on the problem of preventing and treating myocardial infarction, it is possible to state a

fairly high inventive activity of specialists from a number of countries of the world community. Patented inventions are a fairly significant contribution to the problem of preventing and treating myocardial infarction. The information provided in the article may be useful for cardiologists and other medical specialists whose activities are related to the pathology of the cardiovascular system.

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ЗДОРОВЬЕ ПОДРОСТКОВ – ЭЛЕМЕНТ БЕЗОПАСНОСТИ ГОСУДАРСТВА

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Аннотация. В Республике Беларусь медицинское обеспечение по подготовке граждан к военной службе проводится до призыва, начиная с 14-летнего возраста до их приписки к призывным участкам (17 лет). Анализ заболеваемости позволяет предупредить развитие болезни, не допустить перехода ее в хроническую стадию и сохранить здоровье подростков-допризывников.

Ключевые слова: подростки, допризывники, военная служба, медицинские мероприятия.