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HISTORY OF THE DEVELOPMENT OF EPIDEMIOLOGY AS A GENERAL MEDICAL SCIENCE

Abstract

The article provides brief information on the history of the epidemiology of infectious and non-infectious diseases and shares the achievements and experience of studying these diseases in recent years. Epidemiology, as a general medical science, studies the causes, conditions, and mechanisms of population morbidity, its distribution across the territory, among different population groups, and within space. Currently, the list of infectious diseases cannot be said to decrease, because in fact, new infections are constantly appearing, but they are not always detected in time and sometimes run in a hidden, latent manner. In the history of medicine, there are known cases of the emergence of new diseases, but the etiological origin of which is unknown and which covered large areas and then disappeared. In recent years, the general principles and methodological bases of studying all diseases at the population level have been developed. For this purpose, the term epidemiology is widely used. After the bacteriological discoveries, epidemiology was formed as a science that studies the regularities of the epidemic the process during a century of development. The formation of epidemiology as a science about epidemics coincides with the period of the emergence of ancient medicine.

Keywords*: epidemiology, prevention, non-infectious diseases, diagnostics, infectious diseases, epidemiological aspects, epidemiological control*

Introduction

As it is known, Epidemiology, as a general medical science, studies the causes, conditions, and mechanism of clarification of the disease of the population, spreading it throughout the territory, among different populations, and within the space. In other words, Epidemiology is concerned with studying the characteristics and frequency of spread of infectious and non-infectious diseases in specific populations Agayev, 2020: 132). The tasks facing epidemiology are constantly expanding, they are changing under the influence of the socio-economic conditions of human society, as well as due to the increase in infectious pathologies. Human beings are constantly subjected to the "aggression" of new types of infectious diseases. At the moment, there is no telling the decline in the list of infectious diseases, because in truth, new infections are constantly occurring, but they are

not always timely, and sometimes drive in a hidden, latent manner (Agayev, 2022: 48). New diseases are known in medical history, but the etiological origin is unclear and large areas have been covered, and then disappeared. In addition, there are known cases of new infections that are caused by unknown perpetrators but do not enter the WOS list. In modern times, coronavirus, HIV infection, tuberculosis, malaria, and hemorrhagic fever induced by the Ebola virus are considered the leading noisy forms.

At present, infectious diseases spread through the mechanism of «cosmopolitan» transmission are widespread and do not know any geographical boundaries. Diseases not controlled by immunoprophylaxis are common globally.

The interest of epidemiology includes issues such as the retention of the perpetrator in nature, the formation of collective immunity, the impact of human activity on the spread of infection, the evolution of infectious diseases and the emergence of new perpetrators.In history, humanity has encountered massive, and sometimes devastating infectious diseases. In certain years, the mortality rate of people with infectious diseases has reached 70%. Just to give you an idea of the damage infectious diseases cause, 20 million people died in the world during the 1918-1919 influenza pandemic. Within the causes of death in economically backward, developing countries, the particular incidence of infections as before is high (Agayev, 2022: 128).

Research

Initially, epidemiology was established as the science of studying infectious diseases. But later, the methods used here were also applied to the study of non-infectious diseases (Caliphate, 2021: 38). As a result of this, the concept of "epidemiology of infectious diseases" and "epidemiology of non-infectious diseases" was formed, and the aims and objectives of both are the same. There are many definitions of the term «epidemiology». The best was given by Last J.M. (1988): “Epidemiology is the science that studies the causes and prevalence of diseases in society and applies the acquired knowledge to solve health problems.” It combines several key concepts that reflect the essential principles of this discipline:

- “Epidemiology” as science is a free scientific discipline sometimes referred to as the principal science of public health and has unique scientific examination methods;

- «Epidemiology» is the study of the characteristics and frequency of spread of infectious and non-infectious diseases in specific populations.

The formation of epidemiology as a science about epidemics dates back to the emergence of ancient medicine. The term epidemic («Epi» over + «demos» population) is understood as the incidence and incidence of infectious diseases that are not previously mentioned in a given area. Accurate information about infectious diseases can be found 4,000 to 3,000 years ago, but the adaptation of most infectious diseases to the human body falls in the course of human emergence as a conscious species (H.Sapiens). In papyruses from ancient Egypt, B.C. There are records of the presence of a disease similar to natural "smallpox" in 3700-3710; the first reports of leprosy are there in B.C. It was issued in the 3000-2500s. There are records in ancient religious documents of the pestilence epidemic among Jews who were transferred from Egypt in 1120 BC. The ancient Indian holy book about the relationship of pest to rats shows that if “rats fall from the roof and die, this indicates that tuna is near.” The first information about many infectious diseases is found in the works of Hippocrates (460-377 BC) (“Air, Water, Earth”, “Epidemics”, Books I-VII, etc.).

«With the epidemic constitution («myasmatic») theory, Hippocrates B.C. In 460-377, he brought the term "Epidemiology" to medicine. He explained in this term that a number of epidemics are developing in these areas or other areas. Scientist linked epidemics to climate, behavioral, atmospheric and other impacts, and also said they occurred depending on different natural phenomena: volcanic eruption, floods, etc. (Agayev, 2022; 37).

Despite the widespread of infectious diseases in the Middle Ages, there is no innovation in the study of epidemics. The devotees prevented the formation of new ideas in this area and prevented the implementation of measures introduced in ancient times. During the Renaissance (XIV-XV century), the eminent Italian physician and astronomer Ciralamo Fracastro (1478-1553) attempted

to create a theory about the emergence and development of epidemic diseases for the first time («contagions, contagious diseases and their treatment») in his book. In this book, written in 1546, he mentions the importance of living creatures in infectious diseases (natural smallpox, plague, measles, rabies, leprosy, etc.) with great foresight that they have the ability to increase. They spread through the air even when in direct contact with the patient's belongings. Subsequently, during the industrial revolution (XVI-XVIII century), the number of scientific works performed in natural science, which played a role in transforming epidimiology into free medical science, increased. The favorable conditions at that time stimulated the emergence of a new science - bacteriology, which in turn boosted the progress of all medical science, as well as epidemiology, a science with scientific and practical activity in the field of combating infectious diseases. Among the scientists of the time, two opposing views existed, one explaining the nature of infectious diseases: 1) miasmatics, 2) contagionists.

The first (miasmatics) believe that the formation of an epidemic depends on the change in the «epidemic constitutions» of a climate-dependent atmosphere. In certain conditions, «harmful onset» (miazes) increases in the soil, infecting people by spreading air and producing disease. Thomas Saydenham (1524-1689), a famous English physician, was a supporter of this direction in medicine. When dealing with infectious diseases, he described a wide range of diseases, including measles, blueberries, natural flowers, dung, scarlet, malaria, and other infectious diseases (Bhopal, 2003: 23). Saydenkham "Epidemic constitution" or myasmatic-contagiosis in theory (1624-1639) has shown that the "onset" factor that induces epidemic diseases originates in decaying substances. This theory, together with the views about the "arbitrariness of microbes" and the theory of the "epidemic constitution", which acknowledges the "constitutional" nature of epidemics, confirmed their role in the creation of diseases, and transmission through infected persons and dirty objects. The miasmatic contagiosis theory ruled until the end of the 19th century.

According to the second ones (contagionists), the disease is caused by a growing “contagion” in the patient's body and by creatures (contagions) secreted into the external environment. The author of this opinion was Danilo Samoylovich, a prominent Russian physician (1744-1805).

The fact that people were vaccinated with cowpox by the English physician E.Cenner (1749-1823) in the development of epidemiology was a great help. However, thanks to the scientific work carried out by L.Paster (1822-1825), I.I.Mechnikov (1845-1916), R.Kox (1843-1910), D.I.Ivanovsky (1864-1920) in the second half of the 19th century, the rapid development of microbiology confirmed the modern ideas currently present in the epidemiology of infectious diseases (Gordis, 1996: 49).

The cause of epidemic diseases – living organisms (contagium virum) - its proponents believed that these organisms were transferred from patients to healthy persons. This information is provided by B.C. It can be found in the description of the “disease of killing” in 430. The theory of biological factors first discovered the perpetrators of chickenpox, postpartum fever, irritable abscesses, and osteomyelitis, L.Paster brought facts proving microbial nature of infectious diseases: e.g., returning whooping (1873), leprosy (1874), abdominal whooping (1880), tuberculosis, mangoes (1882), and the like, diphtheria, tetanus (1883-1884), brucellosis (1886), plague (1894), botulism, dysentery, etc. Sometimes they believe that discoveries in bacteriology have also led to a revolution in epidemiology. But it was not just epidemiology alone, but the achievement of medicine altogether. Training on infectious diseases under the influence of an emerging new medical science - bacteriology - has been developed. Also new medical sciences: immunology, and clinics of infectious diseases (Murray, 1997: 86).

The revival of epidemiology took place thanks to the progressions of new medical sciences. These achievements were achieved by the work of D.K.Zabolotny (1866-1929), L.V. Gromashevsky (1887-1980), V.A. Bashenin (1882-1978), Y.N. Pavlovsky (1884-1969), distinguished scholars of the twentieth century. D.K.Zabolotny is the founder of Soviet epidemiology, author of the first book «Foundations of Epidemiology» (1927). The subsequent

development of epidemiology is due to the names of L.V.Gromashevsky, V.A.Basheen and Y.N. Pavlovsky, leaders of 3 schools over several decades.

L.V.Gromashevsky was a proponent of an unconventional way of developing epidemiology. Its main method of screening is the synthesis of knowledge that studies infectious diseases. It reflects the synthetic role of epidemiology. The author limits outbreak information to infectious disease and divides it into 2 parts:

a) the narrow sense of the "epidemic" is consistent with the previous designation of the epidemic, b) in addition, it explains the epidemic in broad terms or as a concept of the epidemic process. It also defines epidemiology not only as the science of epidemics (in a narrow sense) but also as the science of the epidemic process and all its manifestations (from epidemics of infectious diseases to single illnesses) (Khalequzzaman, 2017: 96).

Conclusion

Infectious diseases are the leading health concern to date, determining people's health, age, and causes of death. Compared to other diseases, infectious diseases stand in the second-tenth place of the planet's population in the world. It is known that the nosological independence of any disease is determined by the etiological agent. Of course, there are many successes to consider in combating infectious diseases. For example, 7-8 million of 135 million sick children per year worldwide before getting the vaccine against measles, but now 42 mln.| Only 1 million more than that are destroyed (Vahle, 2016: 49).

Due to planned preventive measures, the issues of poliomielitis, complete reversal of the diseases of drachunkulosis (rishta) and leprosy, which are no longer a serious problem, have been realized (Vuorimies, 2017: 43).

Hundreds of millions of deaths in the past millennium have been caused by a pandemic and outbreaks of common plagues, boils, natural smallpox, sprouts and gastroenteritis, diphtheria, malaria, influenza, and other diseases in the past. At the beginning of the twentieth century, mortality rates at high levels of disease were 65-100%, 45% at plagues, 25-40% at gastroenteritis and at choleras (Agaba, 2019: 123).

However, despite success in diagnosing and treating diseases, infectious diseases remain an important pathology of human beings: every second patient who visits a doctor is infected with infectious diseases, and 70% of patients of field pediatricians are children suffering from infectious diseases.

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