

DEVELOPMENT OF THEORETICAL MEDICAL KNOWLEDGE

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Abstract: *In this article, in the XVIII-XIX centuries in Europe, all the leading branches of theoretical and practical medicine developed very quickly and achieved great results. Among theoretical medical sciences, anatomy and physiology were in the first place. Real human anatomy was founded by the Belgian scientist Andreas Vesalius. Starting from Vesalius, the science of anatomy gradually developed and improved. Then came the science of microscopic anatomy (histology). The founder of this science is the Czech scientist Jan Purkinje (1787-1869). In 1837, he was the first to show that animal and human organs consist of cells. Macroscopic anatomy also continued to evolve. Its new fields have emerged. For example, one of these was topographical anatomy. One of the founders of this science is the Russian scientist, famous surgeon N.I. Pirogov (1810-1881). In addition, information was given about scientists who worked in this field.*

Keywords: *physiological processes, topographical anatomy, theory, experimental, root, secretion, concept, physiology.*

INTRODUCTION:

In the 18th and 19th centuries, all leading branches of theoretical and practical medicine in Europe developed very quickly and achieved great results. Among theoretical medical sciences, anatomy and physiology were in the first place. Real human anatomy was founded by the Belgian scientist Andreas Vesalius. Starting from Vesalius, the science of anatomy gradually developed and improved. Then came the science of microscopic anatomy (histology). The founder of this science is the Czech scientist Jan Purkinje (1787-1869). In 1837, he was the first to show that animal and human organs consist of cells. Macroscopic anatomy also continued to evolve. Its new fields have emerged. For example, one of these was topographical anatomy. One of the founders of this science is the Russian scientist, famous surgeon N.I. Pirogov (1810-1881).

Topographical anatomy is a science that studies the location of internal organs and their relative positions.

RESEARCH MATERIALS AND METHODOLOGY

In that period, the sciences of comparative anatomy and young anatomy were also formed. Finally, the science of pathological anatomy also arose. The founder of this science was the Italian scientist Giovanni Battista Morgani (1687-1771). Giovanni Battista first studied normal (healthy) human anatomy. Then he began to investigate the changes that occur in human organs in various diseases. He conducted many tests and found out that different changes occur in different organs in different diseases. With this, Battista founded a new science - the science of pathological anatomy. Rudolf Virkhoff (1821 - 1902) carried out this work microscopically and developed the theory of cellular pathology (cell pathology).



The science of pathological anatomy has discovered a very important practical value. He showed doctors what kind of diseases and what kind of changes occur in which organs. This contributed to the rapid development of clinical medicine. Thus, medicine has improved, and our understanding of diseases has deepened.

In the 18th and 19th centuries, another important theoretical field of medicine, physiology, developed very quickly and achieved great success. The experimental method was widely used in this field. This method made it possible to study the function of all organs in depth.

The experimental method was also used to examine the central nervous system. As a result, significant progress was made in the investigation of the function of the nervous system. This method was perfectly developed and developed by the famous Russian physiologist I.P. Pavlov. Among the founders of experimental physiology, physiologists such as Francois Mojandi, Johann Muller, Dubois Raymond, Claude Bernard, and Helmholtz Hermann made a particularly great contribution to the development of this science.

RESEARCH RESULTS AND DISCUSSION

Francois Mojandi (1783-1855) was a famous physiologist who lived at the end of the 18th century and the first half of the 19th century. He is one of the founders of experimental physiology. Emphasizing the importance of the experimental method, Mojandi wrote, "The source of our knowledge in the field of physiology is only experience." This scientist improved the method of experimental physiology. For example, he studied the spinal cord in a new experimental way and determined the functions of its anterior and posterior roots.

Mojandi also thoroughly checked the functions of other members. However, he made a mistake in this matter. Mojandi thought that physiological processes consist of simple physics - chemical reactions. For example, he understood that the flow of blood in the veins is based on the simple hydraulic law. Even so, Mojandi is a scientist who made a great contribution to the development of the science of physiology.

Johann Müller (1801 - 1858). This scientist was also one of the great experimental scientists of that time, he achieved high results in this field.

Based on his experiments, Johann Müller revealed the essence of many physiological processes and made great discoveries.

Müller examined the function of vision, hearing, speech and urinary tract. He studied the composition of blood in the body, checked the work of internal secretion glands.

Müller hypothesized that these organs have a vital force (vita) that controls the work process. This concept is known as vitalism in physiology.

Dubois Raymond (1818-1896). This scientist developed a new field of physiology - the method of electrophysiology. He found out that electrophysiological processes occur in the organism of animals.

DuBois Raymond was from the point of view of mechanical materialism. However, after learning that physiological processes cannot be explained on the basis of the laws of mechanics, he finally switched to agnosticism, saying that these processes cannot be understood at all, and concluded that we will never know the essence of life processes. The famous formula of agnosticism "ignoramus et ignorabimuz" ("we do not know and will never know") was said by Dubois Raymond.



Claude Bernard (1813-1878). This scientist developed many fields of physiology. In particular, he deeply studied the digestive organs, endocrine glands and blood circulation processes. The scientist takes one of the leading positions in introducing the experimental method in physiology.

Claude Bernard was one of the founders of experimental ental pathology. In general, it can be said that this scientist played a key role in the formation of modern physiology. However, Claude Bernard could not reveal the essence of physiological processes.

German Helmgöis (1821 - 1894). This scientist was a psychiatrist himself. He also studied physiology. He conducted many investigations to understand the essence of physiological and pathological processes. In 1847, he wrote a book called "On the conservation of energy", in which he mathematically substantiated the conservation of energy in the body. With this, Helmholtz denied the concept of "vital force" that was widespread at that time. The scientist clearly developed the physiology of sensory organs (vision, hearing, etc.) and muscle work.

Helmholtz stood for elemental materialism, which opposed vitalistic and metaphysical theories. However, Helmholtz's materialism was not consistent. For example, while recognizing that the environment is real, he made the mistake of saying that a person's understanding of the environment consists of a set of conditional signs.

Thus, although the physiologists of the 19th century made great progress in the development of this science, especially in the development of the experimental method, they reached a dead end in the matter of the essence of physiological processes. Russian physiologist I.M. Sechenov solved this problem based on his reflector theory. He proved that all physiological processes are carried out on the reflex principle.

The work started by I.M. Sechenov was continued by the second famous Russian physiologist I.P. Pavlov (1849-1936). This scientist developed a new field in physiology - the theory of conditioned reflexes.

I.P. Pavlov carried out scientific work on the physiology of the higher nervous system and made important discoveries. In particular, he proved that the function of the brain is carried out in a reflex way.

One of the important achievements of the medical science of the 19th century was the formation of the science of microorganisms. The first step to this science was taken in the 17th century. It was started by the Dutch scientist Anthony Leeuwenhoek. Levenhuk examined the surrounding nature through a simple microscope he invented and found out that there are countless small living creatures (microorganisms) in it. Other scientists were also interested in this issue and conducted many investigations over the last centuries. At that time, the microscope was also improved. It became possible to see very small creatures (microbes). Special sciences that study these creatures - microbiology, bacteriology, virology, parasitology and other sciences have emerged. In-depth study of invisible creatures in nature has shown that there are also harmful ones among them. It was found that these harmful substances cause various infectious diseases. It turned out that every infectious disease has its own microbe. These discoveries were multiplied, especially at the end of the 19th and 20th centuries. For example, in 1839, the German scientist Logan Lucas Schonlein (1793-1864) discovered filamentous fungi. With this, the science of parasitology was founded.

The famous French scientist Louis Pasteur (1822-1913) found out that fermentation is caused by microbes. In 1880, he developed a method of vaccination against rabies. He implemented this method for the first time in 1885.



In 1876, the famous German scientist Robert Koch (1843-1910) discovered the microbe that causes anthrax. In 1882, he identified the germ of tuberculosis. In 1883, he identified the germ of cholera, which is the most dangerous for humans. Robert Koch discovered the cause of the pus that appeared at the site of an injury and cut during surgery. Paul Ehrlich (1854-1915) proved that microbes can develop resistance to various chemicals. Thus, it became known that microbes are the cause of purulent processes. Based on this, the famous English surgeon Joseph Lister (1827-1912) developed the method of asepsis and antiseptics. In 1880, K. Ebert identified the microbe of diarrhoea. In the same year, A. Laveran discovered the causative agent of tropical malaria. In 1885, K. Golgi, in 1890, D. Grassi and P. Fellet found the causative agent of three-day and four-day malaria. In 1895, the Russian scientist P.F. Borovsky identified the causative agent of cutaneous leishmaniasis. In 1883, N.D.M. onastirsky discovered the germ of tetanus. In 1886, D. Bruce identified the cause of black leprosy (brucellosis). In 1894, A. Yersen and A. Kitozato discovered the germ of the plague. In the same year, Emile Roux (1853-1933) discovered diphtheria antitoxin serum. This discovery played an important role in ending diphtheria. In 1903, A. Negri identified the cause of rabies, and in 1909, American scientists G. Ricketts and S. Wilder and Czech scientist S. Provacek identified the cause of typhus.

CONCLUSION

As a result of the development of the science of microbiology and virology, the causes of almost all infectious diseases have been identified. This was a great achievement in the field of practical medicine. These discoveries made it possible to develop preventive and therapeutic measures against infectious diseases.

As a result of advances in the fields of anatomy, physiology and microbiology, as well as the development of such sciences as physics, chemistry, optics, new diagnostic and treatment methods have been developed.

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