KHARKIV NATIONAL MEDICAL UNIVERSITY



HISTORY OF MEDICINE

Methodical developments

for teachers to conduct a practical lesson

on the topic *“****Medicine in the Middle Ages”***

for the preparation of students in specialties:

* 222 “General Medicine”,
* 221 “Dentistry”.

Kharkiv

2018

MINISTRY OF PUBLIC HEALTH OF UKRAINE

KHARKIV NATIONAL MEDICAL UNIVERSITY

DEPARTMENT OF PUBLIC HEALTH AND HEALTHCARE MANAGEMENT

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*Approved by the Academic Council*

*of Kharkiv National Medical University.*

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**GUIDELINES FOR TOPIC TRAINING**

**The aim of the class:** students have to comprehendthemain peculiarities of the development of medieval medicine in Byzantium, the Arab Caliphates and Western Europe.

**To know:**

* ***Curriculum questions:***
* medicine in the Byzantine Empire;
* medicine in the Arab Caliphates;
* European medicine in the Early and High Middle Ages (the 5th–15th cent.);
* European medicine in the Late Middle Ages (the 15th–17th cent.).

**Can:**

* to define periods of the development of medicine in different regions (Europe, Asia) during the Middle Ages;
* to estimate the contribution of physicians to the development of medical science and practice.

**The form of class:** seminar.

**The place of class**: a classroom of the department.

**Methodical equipment of class:**

* methodical guidelines to classes;
* presentation materials;
* tests;
* summary of lectures.

**The algorithm of the class:** Having checked students’ attendance, the teacher announces the topic and the aim of the class, explains the relevance of its studying and possibility of its use in the practical activity.

After the introduction to the class, the teacher finds out what questions students had learnt while preparing the topic. Then the teacher moves to the consideration and control of students’ knowledge on the basic theoretical material, which students could not understand while preparing to class individually.

*Applied forms of control:* recitation; theoretical or problematic discussion; blitz-control according to variants – the amount of time allocated 5–7 min.; tasks on the definition of terminology; written control of theoretical tasks – individual tasks or tasks on a few variants, including 3–4 theoretical questions (the amount of time allocated not more than 20 min.); tests with further analysis of answers.

After the control of the theoretical knowledge the teacher makes key conclusions on the studied topic, he/she sums up the control of theoretical knowledge of students and announces students the marks they received at class.

The teacher also announces home task at the end of the class.

**Class schedule and timing in percent to the duration of class:**

|  |  |  |
| --- | --- | --- |
| 1 | Introduction to class | to 5 % |
| 2 | Control of initiative knowledge | 5–10% |
| 3 | Consideration of the key questions of the topic | 75–80% |
| 4 | Summing-up and the announcement of home task | up to 10% |
|  | **Sum in total** | 100% |

**Reference**

**Basic literature**

1. Bowers B. The Medieval Hospital and Medical Practice / B. Bowers. – Farnham : Ashgate Publishing, 2007. – 258 p.
2. Siraisi N. G. Medieval and Early Renaissance Medicine : An Introduction to Knowledge and Practice / N. Siraisi. – Chicago : University of Chicago Press, 2009. – 264 p.
3. Stupak F. Ya. History of Medicine : textbook / F. Ya. Stupak. – Кyiv : “Book-plus”, 2016. – 128 p.
4. Wallis F. Medieval Medicine: A Reader / F. Wallis. – Toronto: University of Toronto Press, 2010. – 563 p.

**Auxiliary Literature**

1. Kirkham A., Warr C. Wounds in the Middle Ages / A. Kirkham, C. Warr. – Farnham : Ashgate Publishing, 2014. – 270 p.
2. Mitchell P. D.  [Medicine in the Crusades: Warfare, Wounds and the Medieval Surgeon](https://books.google.com/books?id=1GwIDzFxmkEC) / P. Mitchell. – Cambridge : Cambridge University Press, 2004. – 293 p.
3. Metzler I. Disability in Medieval Europe. Thinking about Physical Impairment in the High Middle Ages / I. Metzler. – Oxford : Routledge, 2010. – 356 p.

**Internet Resources**

1. <https://www.historylearningsite.co.uk/>
2. <https://www.metmuseum.org/toah/hd/medm/hd_medm.htm>
3. [www.lordsandladies.org/medicine-in-the-middle-ages.htm](http://www.lordsandladies.org/medicine-in-the-middle-ages.htm)

**MAIN THEORETICAL MATERIAL FOR CLASS TRAINING**

**1. Medicine in the Byzantine Empire**

The official division of the Roman Empire into the Western and Eastern parts took place in 395. The Balkan Peninsula, Asia Minor, Northern Mesopotamia, parts of Armenia and Georgia, Syria, Palestine, Egypt, Cyprus, the islands of the Eastern Mediterranean and some parts of the Black Sea region became the regions of the Eastern Roman Empire.

In the history of the world culture and medicine Byzantine civilization became an immediate successor of the Greek-Roman civilization. It was one of the most cultural European states, influencing greatly the development of neighboring states.

Byzantine medicine was based on the Ancient tradition.

A physician-encyclopaedist ***Oribasius (325–403)*** was a famous representative of Byzantine medicine. At the behest of Emperor Julian he wrote the collection of medical knowledge of the epoch – his main encyclopedic work *“The Medical* *Collections”* in 70 volumes (only 25 of them survived). The collection represented excerpts from the writings of the earlier medical scholars, where ***Oribasius*** placed some works of ***Hippocrates***, ***Herophilos***, ***Erasistratus***, and ***Galen.***

Organization of a health care system played a significant role in the development of Byzantine medicine. Epidemics forced the establishment of the position of a city physician for the poor; the physicians were obliged to treat the urban poor for free. The institution of the *city archiaters* and a health care system in the army remained since the Roman times.

Since the 4th century Christianity became a dominant religion; monasteries emerged. Among their functions were charity, including the treatment of the sick and care after the old and disabled.

The victory of Christianity promoted the establishment of such charitable and medical institutions, as an *orphanotrophium* (a place for orphans), *gerocomium* (a place for the old), *nosocomium* (a place for the sick), *brephotrophium* (a founding hospital for orphans), *xenodochium* (a place for pilgrims), and *hirotrophium* (a place for widows).

In *xenodochia* the sick were provided with separate rooms. Some civil hospitals were also established on the basis of *xenodochia*.

There were pharmacies and medical schools attached to the hospitals. Isolation wards were opened for the sick with infectious diseases.

Some works of Byzantine historians contain descriptions of the epidemics, emerged in Byzantium, clinical manifestations of the epidemics of diseases and anti-epidemic measures.

The Byzantine Empire inherited from the Classical antiquity facilities and the way of life of cities: water-providing systems, sewers, and thermae. Outstanding hydraulic facilities included the *Valens Aqueduct* and the aqueduct, built in Justinian’s times; underground reservoirs (the *Basilica Cistern* in Istanbul remained to our time).

1. **Medicine in the Arab Caliphates**

Old Arabic tribes inhabited the Arabian Peninsula. As a result of the Arabian conquests beyond the bounds of the Arabian Peninsula, the Caliphate – a big feudal state emerged. Byzantine and Persian possessions as well as significant territories of Armenia and Georgia became a part of this state. As a result of the second stage of the conquests Northern Africa, Spain, the greater part of Central Asia and the Transcaucasia were conquered.

The essence of that time culture was characterized by a desire to master the cultural heritage of the old times, to select all the most progressive things and to develop them further. This cultural feature of Eastern peoples was peculiarly evinced in their science.

In the treatment of internal diseases, first of all, the attention was paid to the appointment of the proper regime, and only after that medicines were used. In making medicines Arabs attained complete mastery. Arabs played an important role in the formation and development of the pharmacy and the pharmacopeia. In the cities pharmacies were opened for making and selling drugs, the first one was opened in *Baghdad in 754*. The drug-selling was controlled, there were special drug inspectors and police officials, who checked drugs and penalized those responsible for falsification or misuse of the drugs. The pharmacy became a separate branch of medicine.

The hospitals, founded by Muslims, were stationary and mobile. The stationary hospitals were opened for wide sections of the population; they were founded by caliphs or famous Muslim figures. They were financed at the expense of their founders, and also from the state treasury. Libraries and medical schools were opened at hospitals, both the theory of medicine and practical skills were taught there; pupils accompanied their teachers during their rounds at hospital and called on the sick at their homes together with them.

Among the hospitals of the Arabic-speaking world the most significant one was the hospital, built in Cairo in 1283. Eight thousand sick were stationed easily in male and female wards according to the type of their disease. The treatment was free for all population strata.

Along with large treatment centers in the Arabic-speaking world there were small *mobile hospitals – military or rural*. The military hospitals moved with the army, they were placed in tents, castles, citadels. During military campaigns women doctors, who took care of the wounded, accompanied the warriors together with men doctors.

In addition to the free treatment in hospitals, the poor were provided with financial support when they were to leave hospital, in order for them not to start working hard immediately.

The representatives of many peoples, inhabited the Arabian Caliphates, connected with them through economics and culture were outstanding figures in medicine.

***Muhammad ibn Zakariya al-Razi* *(865–925)****,* by origin from Iran, was an outstanding physician, philosopher and chemist in the Middle Ages. The use of cotton in medicine and invention of an instrument for the extraction of foreign bodies from the airways are connected with his name.

***Muhammad ibn Zakariya al-Razi*** was the author of an encyclopedic work “*The Virtuous Life”* in 25 volumes. In his work ***al-Razi*** summarized that time knowledge in the field of the theory of medicine, pathology, treatment, dietetics, hygiene, cosmetics, surgery, toxicology and infectious diseases.

Among the numerous achievements of ***al-Razi*** of special importance was a small work “*A Treatise on the Small-pox and Measles”* – the first detailed description of the clinical manifestations and the treatment of two dangerous infectious diseases. ***Al-Razi*** described in it differential diagnostics of smallpox and measles (regarding them as different forms of the same disease), treatment, feeding of the sick, protective measures from the infection, care after the skin of the sick.

***Muhammad ibn Zakariya al-Razi*** was one of the first to write a popular work for people about the medical care – *“For One Without a Doctor”*. He was the first to introduce *“a case history”* for each sick.

Physicians-Muslims contributed greatly to the development of separate branches of the anatomy and surgery. This manifested the most in the ophthalmology. Studying the eye structure of animals, a physician, physicist and mathematician ***Ibn al-Haytham (965–1039)***, by origin from Iraq, was the first to explain diffraction in ocular media and named the parts of the eye (cornea, lens, vitreous body etc.). Having made models of the lens of crystal and glass, he put forth an idea of correcting vision with the help of biconvex lenses and offered to use them while reading in people’s old age. Thus, the invention of glasses is credited to ***Ibn al-Haytham***. The fundamental work of ***Ibn al-Haytham*** *“Book of Optics”* made him famous.

***Al-Zahrawi (around 936–1013)*** was the greatest surgeon of the medieval Arabic-speaking world. He was born and lived in Al-Andalus on the Iberian Peninsula.

***Al-Zahrawi*** contributed to different medical branches, but most of all to the surgery. His priorities were: the use of catgut for internal stitching, the suture with the thread with two needles, he was the first to offer reclining position during the operations on the organs of small pelvis; he described tuberculosis of bones and introduced cataract surgery. He invented more than 150 new surgical instruments, described and depicted them. ***Al-Zahrawi*** developed a technique of [burning](https://en.wikipedia.org/wiki/Burn_(injury)) a part of a body to remove or close off a part of it – cauterization.

An encyclopedic work of ***al-Zahrawi*** *“The Book on the Provision of Medical Knowledge to One Who Cannot Get Them by Himself”* fitted into 30 volumes, which summed up the experience of his whole life.

A great scientist and encyclopedist, thinker and physician was ***Ibn Sina (980–1037)***. He wrote about 450 works on philosophy, psychology, mathematics, medicine, physics, astronomy, chemistry, geology and other branches of knowledge.

The worldwide fame brought to ***Ibn Sina*** the five-volume work on medicine *“The Canon of Medicine”* – an encyclopedia, which systematized medical knowledge of that time. The first book was devoted to general provisions: the theory of medicine, causes and symptoms of diseases, diet, prevention and general principles of treatment. The second and the fifth book were devoted to medications. Totally *“Canon”* described 811 medicaments of plant, animal and mineral origin, noted their action, methods of application, rules for their collection and storage. The third book described some diseases, their diagnostics and treatment. The fourth book was devoted to the surgery, systemic diseases, cosmetics, and the doctrine of the venom.

**3. European Medicine in the Early**

**and High Middle Ages (5th–15th centuries)**

After the fall of the Western Roman Empire (476) ancient culture, and medicine, in particular, broke up. School training of physicians stopped; medicine again became a partially family craft, passed from generation to generation. At the same time poor-houses-shelters were set up at the churches and monasteries; clergy, monks in particular, treated the sick and taught physicians. Understandably, the teaching of medicine in such monastery schools could be carried out only in a spirit of full accordance of the view on the structure and functions of the human organism with the Church doctrine. In the West there were also secular medical schools, which preserved the heritage of ancient medicine. Among such schools the most famous was the school in Salerno, founded in 846.

In the Middle Ages various companies, merchant guilds, associations of craftsmen were called “universitas”. Similarly high schools were called *“universitas* *magistrorum et scolarium”* – associations of teachers and students. The first university in the West was founded in Bologna in 1158. Universities were mainly connected with monasteries, their statutes and curricula were under the control of the Catholic Church. Teachers were mainly monks.

Studying of medicine was based not on disease monitoring, or on experiments on animals, but on studying the works of Galen, Hippocrates, Aristotle, which were interpreted in accordance with scriptures. The expression of the views, different from those, recognized by the Church doctrine, was considered to be a crime – heresy.

Usually the surgery was not taught, and in the Middle Ages it did not belong to a medical profession. The practical Surgery was withdrawn from the medical competence of monks due to a ban of church councils to deal with medical procedures with the shedding of blood. This branch of medicine went to craftsmen-barbers which like all craftsmen were consolidated in workshops. The surgery was an occupation of bath attendants, barbers and surgeons, which were not recognized as physicians. In towns most of barbers were illiterate, the craft they studied and passed to their pupils only in a practical way. Some surgeons moved from town to town and advertised their craft at the fairs.

One of the most famous surgeons of medieval Western Europe was ***Guy de Chauliac (about 1300–1368),*** the French, who was not only a physician but also an ecclesiastical person. He created a major work, which included, in addition to his own observations almost all the medical knowledge of that time, a significant part of it had references to the works of ancient authors and Arab physicians. The work consisted of seven treatises: the first one was devoted to the anatomy, the next five – to the surgery, the last one spoke about various, mostly surgical, methods of treatment. He also described anesthetization techniques during operations by inhaling drugs. ***Chauliac’s*** work remained the main theoretical and practical textbook on the surgery in many countries up to the 17th cent.

In the 13th–16th centuries there were large epidemics of various infectious diseases (plague, leprosy, typhoid, smallpox, and etc.). The reasons of their spreading were the development of trade relations with various countries, the growth of cities, concentration of population in cities, poor sanitation, mass movement of people (*“the great migration of people”),* the Crusades from 1096 to 1291.

The Crusades in Western Europe had significant political and cultural implications: creating of the Knights’ Order of Hospitaller, which cared after the sick and infirm; following an example of the East, building hospitals of a secular type etc.

The disease with skin lesions commonly called leprosy was very widespread. There were laws issued, according to which the lepers had to wear certain clothes, when approaching a person they had to signal about themselves with a bell or rattle. Wide spreading of leprosy contributed to the creation of the Order of St. Lazarus to take care of the lepers; the shelters organized by the Order were called *“lazarets”.*

The most terrible disease of the Middle Ages was plague, epidemic of which burst out in the 14th century. It is suggested that it claimed the lives of nearly 25 million people due to ignorance of the causes of disease, helplessness, rapid death of patients with pneumonic plague.

Medical faculties of universities in this case were helpless. Some radical means of the epidemic control were used in some Italian cities: patients were forcibly isolated outside the city, their clothes was burnt, furniture and houses were ventilated for a long time, the purity of water and streets was watched, and there even was the extermination of rats.

In general, epidemics allowed a wide range of physicians to ensure the possibility of transmission of these diseases through touching and stuff. In many countries during epidemics the streets, cities where the disease was revealed were isolated. In the major port cities there began requiring a special supervision from crews of suspicious ships before unloading within 40 days (quarantine – 40 “forty”); a position of special sanitary guards was introduced in ports.

Medicine of Medieval Europe developed in difficult and adverse conditions, but at this time the preconditions for future medicine of the Late Middle Ages and its important component – the Renaissance were formed.

**4. European Medicine**

**in the Late Middle Ages (15th–17th centuries)**

The Late Middle Ages in Europe are characterized by deep social, economic, political and cultural changes, which significantly accelerated the social development. In a feudal social and economic structure emerged new capitalist mode of production which needed a new influx of knowledge.

In the late Middle Ages the main features of the Natural History were: strengthening of the research method in science, the development of exact sciences, metaphysical thinking. The great geographical discoveries greatly expanded knowledge of Europeans on the world, destroyed misconceptions about other continents and nations.

The ideological content of the culture of this period was the humanity, which originated in the 15th century in Italy and later spread to other European countries. The central place in the views of humanists on the life occupied human.

English philosopher ***Francis Bacon (1561–1626)*** in his work *“New Organon”* formulated three main goals of medicine: protecting of health, treating of disease, and prolongation of human life.

The formation of the anatomy as a science occurred in this period. In 1590 in Padua first anatomical theatre was built. The autopsy was started.

A brilliant Italian scientist and artist ***Leonardo da Vinci (1452–1519)*** confirmed research method in science, he was one of the first in Europe began to dissect human corpses and systematically studied the structure of the human body. He introduced new methods for anatomical study, flushing of running water, wax injection ventricles of the brain and blood vessels, sawing of bones and organs. Leonardo described and drew a lot of muscles, bones, nerves and internal organs. His anatomical drawings were accurate and were used for workshops.

***Andreas Vesalius (1514–1564)*** became a founder of the modern scientific anatomy. He was born in Brussels, studied medicine in Montpellier and Paris. At the age of 25, he became a professor of the anatomy in the University of Padua. In 1538 *“The Six Anatomical Tables”* of ***Vesalius*** was printed, and later – *“On the Structure of the Human Body”* in seven books. Vesalius enriched science with his own data obtained as a result of numerous sections of the human body. He corrected many mistakes of his predecessors and at first systematized all known knowledge, creating anatomy as a science.

***Vesalius*** corrected 200 mistakes of ***Galen***, among which special attention should be paid to the claim that the right ventricle of the heart in adults is connected with the left. ***Vesalius*** was *a founder of* not only *the anatomy, but also the experimental physiology.*

***Michael Servetus (1509–1553)*** was a Spanish physician, he described the pulmonary circuit. For his work M. Servetus was accused of heresy and burned at the stake in 1553.

Physiological understanding of anatomical data started in the 17th century. The emergence of functional direction in the anatomy, formation of physiology as a science was associated with the name of a famous English physician, physiologist and embryologist ***William Harvey (1578–1657)***, who created a coherent theory of circulation, described in his work *“Anatomical Study of the Movement of the Heart and Blood in Animals”.*

*Iatrochemisry* began to develop rapidly at that time. *Iatrochemists* thought, processes, which occurred in the body, were chemical, i.e. both studying of these processes and treatment of diseases should be connected with the chemistry. One of the founders of iatrochemistry was a famous chemist and physician ***Paracelsus (1493–1541),*** he taught at the University of Basel. ***Paracelsus*** considered the experience as a basis of knowledge. The fundamental transformation of chemistry in its use in medicine: from the search for the ways to afford gold to making medicines, starts with his name. ***Paracelsus*** introduced various chemical agents into medical practice. The mercury, sulfur and salt took a central place in Paracelsus’s medicine; disproportion of them was considered to be a disease. He used mercury to treat syphilis. ***Paracelsus*** developed the studies about *a doze*. He studied the effect of mineral water and used it for treatment; some of mineral waters were first discovered by ***Paracelsus***.

He developed the classification of the factors, affecting human health, divided them into five types: natural ones; toxins, poisons, and the factors that cause infection; psychological factors; astral influences; and spiritual reasons.

***Paracelsus*** insisted on combining the surgery and internal medicine into a single science, because they both had the same origin. In his works Paracelsus also described diseases of miners and smelters, i.e. he laid the foundations of a future science about occupational diseases.

The development of medical chemistry contributed to the development of the pharmaceutical business. In the middle of the 16th century the first pharmacopoea began to appear, they listed medicines available in a given city or country, their contents and price. Thus, the official price regulation of medicines began in Europe.

In Western Europe of that time there was a distinction between physicians, who received medical education at universities and were engaged only in the treatment of internal diseases and surgeons, who had no scientific education and were not considered as physicians. There was professional gradation among surgeons. The highest position was occupied by *“long-robed surgeons”,* who were marked out by their long clothes and who had the right to perform the most difficult operations. The surgeons of the other category – *“short-robed”* were mainly *barbers* and performed *“small”* surgery. The lowest position was occupied by the representatives of the third category of surgeons – *“bath-house attendants”,* which performed the simplest operations.

With the appearance of fire-arms in Europe in the 15th century, the nature of wounds changed significantly: the open wound surface expanded, wound abscesses increased, general complications became more frequent. All this was connected with *“poison powder”,* which entered the body.

***Ambroise Pare (1510–1590)*** was a French surgeon and obstetrician, who turned the long-held ideas in medicine. ***Pare*** contributed greatly to the studies about the treatment of gunshot wounds. In 1536 ***Pare*** invented a new method of the wounds’ treatment the essence of which was to put egg yolk, rose and turpentine oil as well as a clean bandage on the wound. The given method was much more effective and human than cauterization of the wound by the red-hot iron or boiling elderberry oil, which was current at that time. ***A. Pare*** improved significantly the technique of many surgical operations, he revived the practice of podalic version, he applied the ligature of vessels instead of cauterization, designed a new set of surgical instruments and orthopedic devices, including artificial extremities and joints.

During this period epidemics are characterized by reducing of the leprosy and plague and appearance of new diseases (syphilis, typhus etc.).

***Girolamo Fracastoro (1478–1553)*** was an Italian physician, physicist, astronomer and poet, one of the most outstanding figures of that time, who systematized and summarized the studies about «the contagion», a specific infectious agent, which multiplies. He also encouraged further study of infectious diseases. In his largest medical work *“On Contagion and Contagious Diseases”* (1546) ***G. Fracastoro*** summarized the views of his predecessors and his own experience, made first attempt to create a general theory of epidemic diseases and to give description of some particular diseases – smallpox, measles, plague, tuberculosis, rabies, leprosy etc.

***G. Fracastoro*** pointed out 3 modes of transmission: by direct or indirect contact with a sick person, infected objects and air over long distance. The name *“infectious diseases”* originated from the terms *“infection”* and *“disinfection”*, introduced by him.

It is perfectly just to consider ***G. Fracastoro*** as a founder of modern epidemiology.

**TESTS**

|  |  |  |
| --- | --- | --- |
| 1. | For millennia, the laws of sanguine motion remained not properly understood. Physicians and scientists thought, that the blood carrying nutrients flowed through the veins to the organs, while “living spirits” ran through the arteries. Instead of the blood absorbed by the organs, the liver produced more new portions of it. Who created the theory of blood circulation? | |
|  | A | Ambroise Pare |
|  | B | Andreas Vesalius |
|  | C | Hippocrates |
|  | \*D | William Harvey |
| 2. | A great scientists and encyclopedist, thinker and physician of the period of the Arab Caliphates was ***Ibn Sina*** ***(980–1037)***. He wrote about 450 works on philosophy, psychology, mathematics, medicine, physics, astronomy, chemistry, geology and other branches of knowledge. What was the main work of ***Ibn Sina*** on medicine? | |
|  | \*A | The Canon of Medicine |
|  | B | On Medicine |
|  | C | On Smallpox and Measles |
|  | D | Prognostics |
| 3. | In the late Middle Ages the main features of the Natural History were: strengthening of the research method in science, the development of exact sciences, metaphysical thinking. Who was the founder of the scientific anatomy in the Renaissance Epoch? | |
|  | A | Ambroise Pare |
|  | \*B | Andreas Vesalius |
|  | C | Marcello Malpighi |
|  | D | William Harvey |
| 4. | ***Ambroise Pare (1510–1590)*** was a famous French researcher, physician, who turned the long-held ideas in the medieval medicine. What field of medicine did ***Ambroise Pare*** contribute to? | |
|  | A | Infectious diseases |
|  | B | Physiology |
|  | \*C | Surgery |
|  | D | Therapy |
| 5. | The pulmonary circulation carries blood from the right ventricles through the pulmonary artery to the lungs. Having passed the lungs capillaries, blood flows into the left atrium through four pulmonary veins. Having moved from the latter to the left ventricle, it returns to the systemic circuit What scientist was the first to describe the pulmonary circuit in Europe in the 16th century? | |
|  | A | Andreas Vesalius |
|  | B | Marcello Malpighi |
|  | \*C | Michael Servetus |
|  | D | William Harvey |
| 6. | Arabic physicians played an important role in the development of pharmacy, therapy and surgery. Who of Arabic physician was the first to describe smallpox and measles? | |
|  | A | Ali ibn Abbas |
|  | B | Al-Zahrawi |
|  | C | Ibn al-Haytham |
|  | \*D | Muhammad ibn Zakariya al-Razi |
| 7. | After the fall of the Western Roman Empire (476) ancient culture, and medicine, in particular, broke up. Universities were mainly connected with monasteries, their statutes and curricula were under the control of the Catholic Church. What were the methods of teaching medicine in European universities during the Classic Middle Ages? | |
|  | \*A | Only theory in the total absence of practice |
|  | B | Practical classes at the bed of the sick |
|  | C | Practical classes in the open air |
|  | D | Theory combined with practice at the bed of the sick |
| 8. | ***Andreas Vesalius (1514–1564)*** became a founder of the modern scientific anatomy. He was born in Brussels, studied medicine in Montpellier and Paris. At the age of 25, he became a professor of anatomy in University of Padua. What book did ***Andreas Vesalius*** write? | |
|  | \*A | On the Fabric of the Human body |
|  | B | On the Motion of the Blood |
|  | C | On the Motion of the Heart and Blood |
|  | D | On the Structure of the Animal World |
| 9. | ***William Harvey (1578–1657)*** was an English physician, physiologist and embryologist. What main scientific work did ***Harvey*** write? | |
|  | A | On the Diseases of Craftsmen |
|  | B | On the Fabric of the Human Body |
|  | \*C | On the Motion of the Heart and Blood |
|  | D | On the Syphilis |
| 10. | In 476 the Western Roman Empire ceased to exist. Since that time the epoch of the Middle Ages began in Europe. What periods are the Middle Ages in Europe divided into? List in the correct sequence. | |
|  | \*A | The Early, High Middle Ages, the Renaissance |
|  | B | The High Middle Ages, the Renaissance, feudalism |
|  | C | The Renaissance, the Early Middle Ages, the High Middle Ages |
|  | D | The Slave-owning, feudalism, and capitalism |
| 11. | Usually the surgery was not taught, and in the Middle Ages it did not belong to a medical profession. Who were surgeons in Europe in the period of the High Middle Ages? | |
|  | \*A | Barbers |
|  | B | Monks |
|  | C | Periodeuts |
|  | D | Physicians |
| 12. | Since the 4th century Christianity became a dominant religion. The victory of Christianity promoted the establishment of various charitable and medical institutions. How were hospitals called in Byzantine? | |
|  | A | Hirotrophium |
|  | \*B | Nosocomium |
|  | C | Orphanotrophium |
|  | D | Xenodochium |
| 13. | Physicians-Muslims contributed greatly to the development of separate branches of the anatomy and surgery. The greatest surgeon of the medieval Arabic-speaking world was… | |
|  | A | Ali ibn Abbas |
|  | \*B | Al-Zahrawi |
|  | C | Ibn al-Haytham |
|  | D | Muhammad ibn Zakariya al-Razi |
| 14. | During this period epidemics were characterized by the reduction of the leprosy and plague and appearance of new diseases (syphilis, typhus etc.). What scientist of the 16th century studied infectious diseases and systematized the ways of transmission? | |
|  | A | Ambroise Pare |
|  | B | Bernardino Ramazzini |
|  | \*C | Girolamo Fracastoro |
|  | D | William Harvey |
| 15. | The main method of the wound treatment in the Middle Ages was cauterization of the wound by the red-hot iron or boiling elderberry oil. What physician invented a human method of the wound treatment in the 16th cent.? | |
|  | A | Al-Zahrawi |
|  | \*B | Ambroise Pare |
|  | C | Andreas Vesalius |
|  | D | William Harvey |

**QUESTIONS FOR SELF-CONTROL**

1. What were the peculiarities of the development of medicine in Western Europe in the Middle Ages?

2. What do you know about ***Andreas Vesalius*** and his famous work?

3. What contribution to the development of medicine ***William Harvey*** made?

4. What representative of the iatrochemichal direction in medicine do you know?

5. Who created the studies about infectious diseases?

6. How did surgery develop in Medieval Europe?

7. What contribution to the development of surgery ***Ambroise Pare*** made?

8. What were the peculiarities of the development of medicine in the Byzantine Empire?

9. What scientific works of Byzantine scientists do you know?

10. What new medical institutions appeared in Byzantium?

11. What were the peculiarities of medicine in the Arab Caliphates?

12. What medical institutions were in the cities of the Arab Caliphates?

13. What do you know about ***Ibn Sina*** and his famous medical work?

14. What were the peculiarities of medicine in Western Europe during the Early and High Middle Ages?

15. What was the influence of the Catholic Church on the medical science?

16. What was the medical education in Western Europe in the High Middle Ages like?

17. What caused the wide spread of infectious diseases in the Middle Ages?

18. What anti-epidemic measures did physicians take in the Middle Ages?

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*Educational publication*

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Methodical developments for teachers

to conduct a practical lesson on the topic

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