The history of medicine

Abstract

Through various online articles, this paper explores the history of medicine throughout different cultural empires as well as some famous contributors to the history of medicine as a whole. The text focuses on empires such as the Greeks, Egyptians, and Romans as well as medicine in today's era. Additionally, this paper explores the discovery and impact of sanitation, antibiotics, and vaccinations. Lastly, the text explores recent contributions to medicine, including molecular biology, genetic engineering, and advanced technology.

The History of Medicine

Throughout history, medicine has been a fast-growing epidemic in the diagnosis, treatment, and prevention of disease. The human species has seen many advancements in medicine and its practice. From using clay to heal broken bones in the primitive age to genetically modifying DNA in today's society, the human species has gained an astounding plethora of knowledge and understanding of medicine since 1500 B. C. These advancements in medicine and its practice can be attributed to the work of many scientists and medical professionals. These medical professionals and their discoveries are a part of the reason why modern medicine has reached such success today. The medical discoveries and advancements made throughout different cultures as well as in modern medicine today play a big role in the history of medicine.

The history of medicine is believed to begin in the primitive age. Illnesses were believed to be caused by evil spirits or evil magic being performed by

an enemy. Likewise, the cure was believed to be attained by driving out the evil spirits or breaking the spell of the enemy. While these primitive people did largely attribute magic to the cause and cure of their health, they also did not stray from practical medical treatments. The majority of their treatments stemmed from ideas of common sense, such as fire causes burns or a serious fall could lead to a broken bone. The medical treatments used to aid the healing process were very simple remedies such as covering a broken limb in clay and allowing it to harden in the sun to act as a cast. Another remedy was covering cuts or wounds in animal fat and binding the area with animal skins (Lambert, 2019). The people of the primitive age were not limited only to these natural remedies, though. In addition to these treatments, these people also took on surgery, specifically to the skull. While it is unknown to researchers today exactly why these people used surgery in their practice, it is believed that it was done in order to relieve pressure due to a fall or head injury. Whether through simple medical treatments or surgery, the medical history of those of the primitive age is quite impressive for their time.

Much like the practice of the primitive people, the Egyptians also based their medicine on magic, though not as heavily. They believed that spells and amulets helped to obviate disease. In terms of practical treatment, the system of medicine within the Egyptian culture was much more structured and advanced. The Egyptians had specialized jobs in their society, one of which is a doctor. These doctors treated citizens with drugs made from various herbs and minerals, which were paired with dough to make pills and beer or wine to wash it down. Not only were their treatments more

advanced, but the equipment and procedures used were more advanced as well. They used equipment such as “ probes, saws, forceps, scalpels, and scissors” for surgeries as well as methods like sutures and cauterization (Lambert, 2019). Additionally, they had an abundance of knowledge on the human body and how it worked due to the religious practice of embalming. The ancient Egyptians knew that “ the human body was full of passages that acted like irrigation canals” and these canals could sometimes become blocked (Lambert, 2019). The blockages lead to illness and could be cleared through laxative use or induced vomiting. Unlike the primitive people, the Egyptians kept a book of the treatments that worked and those that did not. The earliest recorded book was the Ebers Papyrus in 1500 B. C. This strategy helped to perfect the treatment and procedures in Egyptian medicine. Although the Egyptians were extremely medically advanced for their time, much of their success may also be attributed to their cleanliness and personal hygiene as they were very clean people who washed their bodies and changed their clothes every day. However, they did not believe this combination was essential for maintaining good health.

The ancient Greeks form of magic was through religion. Many of the Greeks believed in a healing God named Asclepius who took offerings in exchange for healing. The Greeks believed that if they slept in his temple, Asclepius would visit them in their dreams, and the next morning they would be healed (Brazier). This belief was allowed to peacefully coexist with the Greeks rational medical practice and theory of disease. One theory is that of Aristotle, who believed that the body is comprised of four liquids, known as the four humors, including phlegm, blood, yellow bile, and black bile. It was

theorized that if the liquids were not in equilibrium with each other, sickness would ensue (Brazier). For example, a person with a fever would be treated with a cut in order to lower the level of blood in the body to reach equilibrium again. One of the most important figures in Greek medicine was Hippocrates, who was named “ the father of medicine.” Hippocrates had many important contributions to the field of medicine as a whole. For example, Hippocrates coined many medical terms such as acute and chronic, endemic and epidemic, as well as Hippocratic fingers (clubbed fingers) and Hippocratic face (a face not far from death) (Brazier). Lastly, the Greeks were well aware of the impact that diet and exercise had on one’s health. They mainly focused on personal health rather than public health by doing things such as eating healthy, exercising and washing regularly. Their goal was to maintain the balance of the four humors.

Medicine in ancient Rome was very similar to that of the Greeks as the Romans adopted the theories and practices of the Greeks. One theory was that of the four humors from Aristotle. Greek medicine was also very popular with the Romans because many scientists and doctors came to Rome from Greece. These medical professionals were initially prisoners of war but later migrated to Rome due to an increase in pay (Brazier). Many of these professionals gained their medical experience on the battlefield, where they carried around a toolbox with various equipment and drugs to heal the soldiers. Alternatively, some Roman doctors resided in a hospital setting where they could easily observe the veterans and soldiers rather than relying on religious practices for healing. Doctors in hospitals often treated soldiers and veterans with severe wounds, which helped them better

understand the human anatomy, as they were not allowed to dissect the human body as the Egyptians did (Brazier). However, Claudius Galen, a popular Greek doctor who later migrated to Rome, was an expert on anatomy due to his dissection of animals, which he then applied to the human anatomy. Though he mainly focused on dissecting animals, he also dissected a few human corpses that had unearthed from a cemetery flooding. Galen had an abundance of knowledge regarding the anatomy and how it worked, and he later went on to write several medical books (Historic Figures, 2014). Galen had many important discoveries and many of them were accurate. He discovered that urine was formed in the kidneys rather than the bladder, however, Galen's " most important medical discovery was that arteries carry the blood" (Historic Figures, 2014). Unlike the Egyptians and the Greeks, the Romans knew that personal hygiene and public health were vital in the prevention of the spread of disease and infection. The Romans created a water supply and a sewage system as well as public bathhouses in order to maintain public health and personal hygiene. This was one of the largest and earliest movements towards better sanitation. However, it was not until later that real changes were made, not only in Rome but across the globe, regarding the development of plumbing, water purification, and garbage collection. These efforts helped to decrease the spread of infection and disease due to the sudden abundance of clean water and sewage drainage (History of Sanitation).

Ancient Chinese medicine differs quite a bit from that of the Egyptians, Romans, and Greeks. The Chinese relied on a more spiritual force for their healing. Traditional Chinese medicine relied on a force called Qi, pronounced

chi, to strengthen and heal the human body as it flowed through it. If the force became blocked, then it was likely that illness would ensue (Britannica, 2018). Overall, the goal of traditional Chinese medicine is to restore or maintain the ying-yang balance. The ying is known as the passive force while the yang is known as the active force. Traditional Chinese medicine uses acupuncture, tai chi, and herbal products for healing. These are all considered “ natural” remedies for pain and illness. The Chinese had another natural way of preventing disease through variolation. Variolation is a deliberate infection with smallpox where “ dried smallpox scabs were blown into the nose of an individual who then contracted the disease” (Smallpox: Variolation, 2013). When the individual recovered, they were immune to the disease. Variolation was the first attempt at a vaccine for smallpox. However, Edward Jenner, who is now considered the founder of vaccinology, was the first to create an actual vaccine for smallpox by using another virus to counteract smallpox. Because of his discovery, the development of vaccines became more and more popular with scientists, ultimately leading to the eradication of the world’s most deadly viruses.

Medicine today is much different than it was all those years ago. The medical community has made many discoveries that now help to prevent and treat illnesses better than ever before. For example, today the human species has access to antibiotic medications and vaccines that help to prevent the spread of disease and infection, whereas, in earlier centuries, more natural remedies were used. The human species can thank Alexander Fleming, a British scientist, for antibiotics. He discovered a substance that attacks bacteria and he called this substance penicillin. Many doctors followed in his

footsteps and began creating their own penicillin (History of Antibiotics). Before long, it was being used to treat illnesses across the globe. Although antibiotics and their discovery have created great success for the medical and pharmaceutical industries, there are some problems with antibiotics. For example, if used too much or incorrectly, the body can build up a resistance to the antibiotic, making it extremely difficult for the antibiotic to kill the pathogen (History of Antibiotics). Therefore, antibiotics should be prescribed and used wisely.

Medicine today is also very different from the past because of the methods used. For example, scientists and researchers today use a procedure called genetic engineering, which is the modification of the genetic components of an organism by changing its genetic material, to manipulate an organism to be very specific. An example of this would be genetically modifying food so it has more nutritional value or a higher growth rate. Even humans can be genetically modified, this is a very controversial procedure commonly known as designer babies. These genetic modifications are done at the molecular level which is incomprehensible to the naked eye. In order to complete these genetic modifications, scientists and researchers must rearrange the DNA at the molecular level. Generally, molecular biology consists of the replication, translation, and transcription of DNA. In genetic engineering, these processes may still be used, however, the modification is very precise. Once the DNA is rearranged and the sequences are in order as desired, the organism is considered genetically modified.

In addition to the introduction of genetic modification, medicine today is very different because of the technology and equipment available. For example,

an electronic stethoscope allows the user to listen to analog and digital sound which can then be transferred to Bluetooth in order to listen on a smartphone. The stethoscope does the listening which allows the doctor to be able to “ visualize waveforms in real time, record and playback body sounds, share recordings, and store data in the patient’s electronic health record in compliance with federal patient privacy rules” (MacRae, 2016). Another technological advancement that sets the past apart from the present is a wireless pulse oximeter. Similar to the stethoscope, the Bluetooth based device is able to integrate oxygen saturation with the patient’s other vital signs, usually to a smartphone or tablet. These modern technological advancements set the human species light years apart when compared to the technology that was used thousands of years ago.

In conclusion, medicine has changed greatly over many centuries. As a species, humans have learned to develop medications and treatments not only to cure illness and disease but to prevent it. Additionally, humans have made incredible discoveries that other researchers were able to build off of and still are to this day. There are many factors in the history of medicine that are very important. Some are very obvious such as medication and treatment while others are common but may have been forgotten about such as the importance of personal hygiene and public health. Overall, the medicinal and technological advancements are truly extraordinary when the timeline is examined, however, the history of medicine is a very broad, deep, and lengthy topic and this text barely scrapes the surface of its greatness.

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