From the Age of Plague To Understand the Worldwide Epidemics

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Introduction

Plague has been one of the problems people face since hundreds of years ago.And many people and living environments in many corners of the world are still suffering now. Scientists, doctors and historians are trying to find the truth in it.And as students who are interested in this topic, we researched different parts about plague including origins, process, information, measures and consequences to make the topic clearer.

Origins of [EPIDEMIC DISEASE]

Virus Hypothesis

One theory is that the virus is derived from a circular DNA (also called a plasmid), it can replicate independently, and moves back and forth between different cells, genetic material from one organism to another organism, for example, some of the plasmid can carry antibiotic resistance genes, this theory is that plasmid can escape from the cells, into another kind of virus particles are produced by cells.

Another theory is that viruses can evolve from highly complex free-living organisms, such as bacteria or cells; A recent study suggests that a protein important to memory in humans, ARC, can form virus-like particles and transfer RNA between different cells, perhaps because similar ancient proteins evolved in different organisms.

One of the earliest known epidemics

Cholera is one of the most dangerous diseases in history, killing millions of people, and the earliest records of it date back to 400 BC. At present, cholera remains one of the major threats to human health, causing between 3 million and 5 million infections each year.

Plague

The 1440s and 1550s were a very sad time for Europe. The plague, known as the Black Death, swept across Europe from 1347 to 1353, killing 25 million Europeans, a third of the population at the time. In the 20th century, world War II, the worst in human history, killed 5 percent of Europe's population. Enough to see what the plague had done to the people of Europe.Europe was crippled by the social, economic and political upheaval caused by the spread of the great plague. The great plague led to famine and to thieves; The prestige of the Catholic church had suffered a severe blow; There was another wave of persecution of the Jews on the grounds that they were spreading the plague and poisoning everywhere. In Mainz 12,000 Jews were burned alive as spreaders of the plague and 16,000 were killed in Strasbourg.The Black Death had a great impact on the economy, politics, culture, religion, science and technology of the Medieval European society.

Evolution of Medical Understanding

Deist medical model

Because the ability to understand the objective world is limited to intuitive observation, the understanding of health and disease can only be supernatural.

It is believed that life and health are given by God, diseases and disasters are punishments by God and possessed by ghosts, and death is "returning to heaven" and God recalling the soul. The protection of health and the treatment of diseases mainly rely on divination and forgiveness.

It is a kind of primitive medical model and a general cognitive mode of medicine formed in the period of the origin of medicine.

Natural philosophy medical model

"Four body fluid" theory and "natural healing power". In ancient China, the pathological theory of "Yin Yang and five elements" and the etiological theories of "six evils" and "seven emotions" of internal causes were discussed.

It is a way of thinking that applies the objective existence and development law of natural phenomena to understand diseases and health problems. It has the characteristics of simplicity and dialectics, and presents a simple and dialectical concept of holistic medicine. To combine health and disease with the natural and social environment of human life, observe and think about medical education network, open up the role of enlightenment medicine, and vigorously promote the development of medicine.

mechanistic medical model

Bacon put forward "study nature with experimental method". Medical tasks are divided into "maintaining health, treating diseases, prolonging life span, and advocating the study of anatomy and pathological anatomy".

Descartes thought that "organism is just a precise machine part", representative works: "animal is a machine", "man is a machine". The human body "is to start their own machine, disease is a part of the machine failure, need to be repaired.".

It is to negate the idealist outlook on life and medicine from the viewpoint of mechanical materialism, lead medicine to the era of experimental medicine, and play an important role in medical progress.

biomedical model

It is a medical view and methodology that reflects the change law of etiology, host and natural environment on the basis of disaster biology science.With the development of life science, people have a new concept of life phenomenon and body changes, as well as health and disease.

Health is to maintain the dynamic balance among the host, environment and pathogen, which can lead to illness if the balance is broken. (i.e. the famous "epidemiological triangle model" in line

with the disease spectrum dominated by infectious diseases). The concept of maintaining ecological balance is an ecological model.

Biomedical model lays the foundation of medical experimental research, promotes the quantitative research of human activities and diseases, and promotes the development of specific diagnosis and therapy.

The biomedical model ignores human's sociality, complex psychological activities and subjective consciousness, which can not fully explain and effectively solve all the problems faced by human health.The further development of Medicine calls for more perfect medical model theory.

Information and Disinformation

Disinformation.

Of course, there were some misconceptions about plague. Between 430 and 427 BC, for example, plague swept through Athens, killing a quarter of its inhabitants. In fact, in addition to the plague itself, it was the wrong defensive measures that caused the tragedy. First, they would hold meetings and pray for spiritual comfort, which indirectly led to the spread of the plague. At that time, religions preached the doctrine of "god-given disease", which made the Athenian citizens more willing to believe that it was pestilence or heaven's warning. Therefore, these religions began to hold large gatherings to make people worship god, make people perform dances to pray, and create various "miracles" to convince people. Second, they have a unique view of treatment that is not only ineffective, but also makes the patient worse off. At that time, the ancient Greek doctor Saint Hippocrates put forward the "temperamental humors theory", which is similar to the Yin and Yang and the five elements of Chinese medicine. It believed that the blood, mucus, black bile and yellow bile in the human body correspond to air, water, earth and fire. This idea is indeed a great breakthrough for theology, but it cannot be said to be correct. Finally, the understanding of the plague is not in place, alternative ways of disinfection, is still to do useless work. The most common method of disinfection in Europe has been to rely on wine, because the alcohol in wine has

the effect of detoxification, so in the era of medical technology lag, wine has become a holy disinfectant used outside the service. However, the disinfection of alcohol requires the concentration of alcohol must be high, and it is well known that the alcohol concentration of wine is not high, so this method of wine disinfection is full of coincidences, some people died because of incomplete disinfection.

Information.

Plague is a disease that affects humans and other mammals. It is caused by the bacterium, Yersinia pestis. Humans usually get plague after being bitten by a rodent flea that is carrying the plague bacterium or by handling an animal infected with plague. Plague is infamous for killing millions of people in Europe during the Middle Ages. Today, modern antibiotics are effective in treating plague. Without prompt treatment, the disease can cause serious illness or death. Presently, human plague infections continue to occur in rural areas in the western United States, but significantly more cases occur in parts of Africa and Asia.

Types of plague

There are three basic forms of plague:

Bubonic plague

The most common form of plague is bubonic plague. It's usually contracted when an infected rodent or flea bites you. In very rare cases, you can get the bacteria from material that has come into contact with an infected person.

Bubonic plague infects your lymphatic system (a part of the immune system), causing inflammation in your lymph nodes. Untreated, it can move into the blood (causing septicemic plague) or to the lungs (causing pneumonic plague).

Septicemic plague

When the bacteria enter the bloodstream directly and multiply there, it's known as septicemic plague. When they're left untreated, both bubonic and pneumonic plague can lead to septicemic plague.

Pneumonic plague

When the bacteria spread to or first infect the lungs, it's known as pneumonic plague — the most lethal form of the disease. When someone with pneumonic plague coughs, the bacteria from their lungs are expelled into the air. Other people who breathe that air can also develop this highly contagious form of plague, which can lead to an epidemic.

Pneumonic plague is the only form of the plague that can be transmitted from person to person.

How plague spreads

People usually get plague through the bite of fleas that have previously fed on infected animals like mice, rats, rabbits, squirrels, chipmunks, and prairie dogs. It can also be spread through direct contact with an infected person or animal or by eating an infected animal.

Plague can also spread through scratches or bites of infected domestic catsTrusted Source.

It's rare for bubonic plague or septicemic plague to spread from one human to another.

Public Health Measure

In the past in early Europe, people deal with plagues with religious ways, which are unscientific. In the 17th century, the political ideology of the nation-state was just forming, with England in the lead. Defoe, like later 18th-century writers, believed that trade was a way out of incessant war. In our own time, the conflict politically and economically is often between a nostalgic and often virulent nationalism and the increasing bonds that tie our world together. Like what Leo Braudy is a professor of English and History at the University of Southern California said: the pandemic of our own time has again brought to the fore the links between our individual lives, our government, and our environment. It is no coincidence that a leader like Jair Bolsonaro of Brazil is a COVID-19 denier as well as an active destroyer of the rainforests.

In recent years, all kinds of public health incidents have occurred frequently, which not only poses a serious threat to public health and social stability, but also challenges the public health emergency response system in China. Reasonable and effective response to public health emergencies is not

only to protect public safety and maintain social stability, but also an important move to build a harmonious society. Therefore, it is necessary to strengthen public health management and establish a sound public health management system.

According to novel coronavirus pneumonia, the number of confirmed cases of the world's new crown pneumonia has broken through 100 thousand cases, and the number of countries and regions affected by the epidemic has been broken by 100 percent according to the WHO statement. The outbreak and spread of the epidemic in many places all over the world make the world public health security face great challenges.

At this "critical moment," the World Health Organization stressed that every effort to contain the virus and slow its spread can save lives and give the health system and society as a whole valuable time to prepare, find effective treatments and develop vaccines.

During the great outbreak of bubonic plague or black death in the hot summer of 1665 in London, special bills of mortality were issued that listed the cause of death. (*London s Bill of Mortality [Official Document]*) Before this period of time, London had also confronted distinct scale of black death. It first attacked Britain in 1348, and then it continued intermittently for more than 300 years. Nearly one third of the British population died of plague. By 1665, the plague had ravaged Europe; more than 60000 people had died in London alone. From June to August of 1665, the population of London decreased by one tenth. In 1603, a large-scale plague also broke out in London. In order to strengthen isolation and control the spread of plague, James I held the first parliament in late 1603 and early 1604 and passed the "decree on relief and management of plague patients". This is a decree issued by Parliament and incorporated into the royal decree. The law strengthened the isolation of infected patients and improved the punishment measures for violators. At this time, family isolation is a kind of complete isolation. According to the law, if someone in the family is infected, all members must stay at home and must not go out under any circumstances. Those who violate the regulations will be severely punished.

The law requires the rescue of patients infected with the epidemic, and the government realizes that only through assistance can the patients be prevented from spreading the disease from moving around. Therefore, financial support is needed. From the end of 1603, the government ordered the special tax for the plague to be changed into ordinary tax, which was added to the regular tax. No matter whether there was a plague or not, all residents in the parish had to pay it. Those who refused to pay taxes were punished. The law also stipulates that law enforcement and staff should be provided for all aspects of epidemic prevention. They shall perform their respective duties to ensure the implementation of the law, and the remuneration of these people shall be paid by the government.

In order to carry out quarantine smoothly, the county and city authorities have also implemented other corresponding supporting measures. For example, since the end of the 16th century, theaters, assemblies and school holidays will be closed in case of an epidemic; depending on the severity of the epidemic, it will decide whether to close inland ports and seaports, and stop foreign trade. In order to better deal with the epidemic, the government has also promulgated regulations to regulate environmental hygiene and food hygiene, and compile death statistics. In the process of carrying out the policy of isolation and epidemic prevention, with the improvement of people's awareness of public health and the strengthening of policy implementation, people have gradually changed from no cooperation to acceptance and recognition

Social and Economic Consequences

The economic consequences of the epidemic are undoubtedly negative. Trade links themselves can also be undermined by their impact. In the Roman Empire, for example, high levels of specialization and trade brought people's incomes to levels that would not be achieved until a thousand years later. But the same connection also promotes the spread of the disease. In the late second century A.D., the Roman economy suffered a great deal. At that time, a disease which was considered as smallpox broke out and destroyed the Roman Empire. A century later, the plague in

Cyprus was a catastrophe, which emptied many Roman cities and caused a sharp and permanent decline in economic activity, as measured by the number of sunken ships (an indicator of total trade) and the level of lead pollution (produced by mining activities). The decline in trade led to a decline in income and a weakening of state capacity, from which the Western Roman Empire never recovered.

But the long-term economic impact is not always the case. The Black Death killed more than a third of Europe's population, but after the plague, arable land far exceeded that of workers. As a result, workers get higher wages.

In Europe, in the wake of the flu pandemic, the real income of European workers has increased dramatically. The high income caused by the plague has led to the increase of people's consumption level, which leads to higher urbanization rate. The plague has effectively transformed parts of Europe from low wage and low urbanization to more suitable for commercial and industrial economic development.

Conclusion

Although human understanding of plague is gradually deepening, as an important factor affecting human life and social development, there are still many aspects that can be further explored. The plagues brought us not only medical advances but also historical changes and reflections on social systems. The research we have conducted is only representative of our own ideas, and we hope that we can conduct more comprehensive and detailed research in the future.

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