Malaria – Research Paper Essay, Research Paper

Research Paper- Malaria

Malaria is a disease caused by a parasite that lives both in mosquitoes and humans (9). Malaria lives in tropical and sub-tropical areas such as Southeast Asia, the Middle East, Haiti, India, The Dominican Republic, Africa, Papua New Guinea, and Central and South America (3). Malaria is one of the largest diseases around the world. About one out of every 20 people on earth, almost 300 million people, suffer from malaria yearly. Almost 2 million of those 300 million people die each year. Many new drugs are being tested to prevent malaria but no sure vaccine has been discovered (1).

Malaria has terrorized this earth since the mid-Pleistocene age. No one knows just when malaria showed up in the Western Hemisphere however. Many say that malaria roamed the New World before the Europeans came over. Yet others will tell you that the Western Hemisphere had no contact with malaria until the end of the fifteenth century. Many other diseases similar in destruction as malaria were brought over from the old world from Europe and Africa (5). Malaria limited colonization all over the world. West Africa and Northern Australia were major hot spot for malaria attacks during the colonization of those areas. Malaria also resulted in many casualties in wars form Ancient Greece to Vietnam and present (2). The Old World supposedly gave malaria to the New World. However, the New World found the first effective treatment for the disease. In 1632, a piece of bark form a Peruvian Tree was taken to Europe by a Spanish priest. The bark was soon found to be a remedy to the constant fevers. Malaria was extremely active in Ancient Rome and Europe. However, it is proven that the malaria back then was much less destructive than it has been in recent centuries. This is because P. falciparum, the most deadly type of malaria, was not present back in Ancient Europe. After the fall of the Roman Empire, the History of malaria is unknown for quite some time in Ancient Europe. It was not until the seventeenth and eighteenth centuries that malaria became a problem again in Europe. The Netherlands, southern Scandinavia, Poland and Russia all experienced malaria terror. Ronald Ross was the first man to reveal the development of the malarial parasite in the mosquito (5).

The new era of malariology came in the last two decades of the nineteenth century (5). Earlier theories on malaria included an idea by Alphonse Laveran in 1880, who claimed that malaria came form the mud. Malaria was often thought of as coming form bad air as well. No one knew what it cam from, they just new it was present in swamps were there was mud and bad air. However, this new era included the idea that parasites were the root to malaria. This idea is what Ronald Ross had explained. (2). This new era led to the new ideas for malaria control, which took place in the first couple of decades of the twentieth century. Malaria control was strengthened in the 1930?s when synthetic antimalarials. They were very useful in the treatment of malaria. In the 1940?s DDT was introduced. This was the first pesticide to be used in order to kill mosquitoes (5). This new pesticide led people to believe that with the right malaria control they could wipe out malaria. DDT was extremely successful especially in India where a DDT spraying program brought malaria cases down by thousands in 1950. Then the mosquitoes became immune to DDT, DDT became expensive, and India had a great big problem all over again. From 1920 to 1950 antibiotics were the most widely used and best treatment for malaria. Since then, no new history has been made. The US Government continues to spend very low income on malaria research and we still have a malaria problem today (2).

There are four kinds of malaria that infect humans. P. falciparum, P. vivax, P. ovale, and P. malariae are the four diseases humans are endanger of getting. The most severe of them all is P. falciparum. P. falciparum has horrible effects. The effects include fever and chills occurring at irregular intervals. P. vivax is the most common parasite in the world. P. vivax?s effects include recurrent fevers known as relapses. P. malariae is very common in Central Africa. However, it also occurs in North Africa and the Eastern Asian islands. P. ovale is usually found in tropical Africa. These four parasites are the four symptoms of malaria. There are also malaria symptoms that are not found in humans however. These parasites are very active today (6). When correctly treated, malaria is not usually fatal. Yet untreated or treated incorrectly these parasites will kill 10% of its victims (3).

The malaria parasite has a life cycle that has many stages involving a human host and an insect host. In the mosquito sexual reproduction occurs by the parasite. In humans, cell division occurs and the parasite reproduces asexually. This process happens first in the liver cells then reproduction happens in the red blood cells (9). The mosquito must bite the human host for the human to get the malaria parasite. When the mosquito bites the skin it begins to suck the human blood. During the time that the mosquito sucks the human blood, it also injects malaria plasmodia. Each Plasmodium then invades a liver cell and multiplies. The liver cell will then burst, releasing a new form of Plasmodia. Then each Plasmodium enters a red blood cell and the plasmodium reproduction occurs again. The red blood cell then bursts releasing the Plasmodia to invade more red blood cells. As the process wears on many red blood cells are lost causing the fevers and chills. Some of the Plasmodia will then infect other mosquitoes when they bite the human host, repeating the process for another unfortunate fellow (6).

In order to know if you have malaria or not you have to be experiencing some of the symptoms or stages such as after twelve to thirty days the victim will undergo signs such as chills, fever, headache and fatigue. These effects can often be very painful and the excessive loss of red blood cells causes these symptoms. The first stage of these attacks is called the cold stage. It is called this because you have chills and shaking for as much as one to two hours. The next stage is the hot stage. In this stage you will experience high fevers of sometimes 107 degrees Fahrenheit for three to four hours. This fever is often escorted by coughing, headache, backache, abdominal pain, nausea, vomiting and delirium. The last stage is the wet stage. This is called the wet stage because you have profuse sweating for two to four hours (3).

Malaria is a hard disease to prevent because mosquitoes are so abundant. Therefore extreme measures are often taken. Installing screens or mosquito netting in living and sleeping quarters is a precaution you are advised to take while staying in a malaria hot spot. Insecticides are used to spray clothes with to lower the risk of running into mosquitoes. Before traveling to any malaria area always get prophylactic drug therapy before leaving (3).

There is really no sure vaccine for malaria. Humans don?t naturally develop any form of immunity for malaria. There is also no sure cure or treatment for malaria (1). Antibiotics often work to treat malaria because antibiotics are designed to kill chloroplasts. Chloroplasts are in parasite therefore antibiotics kill the parasites (4). With the different stages of the life cycle, the effectiveness of different treatments varies. Treatments that fight against liver schizonts are called tissue schizonticides. The treatments that act against red blood cell schizonts are called blood schizonticides.

Gametocides are also effective drugs. This treatment prevents infection of mosquitoes by getting rid of the gametocytes in the blood. Sporontical drugs are treatments that prevent gametocytes from ever getting infected. However, none of these drugs can prevent or treat actual infection (8).

Not enough government funding is being used to research malaria. This is resulting in not a lot of new research. However, It has caught America?s eye that we have been losing the war to malaria. A new study did come out however stating that parasites are more structurally complex than bacteria and viruses. This obviously results in a harder way to kill them. No new drug has come out for malaria (2). No malaria treatment or vaccine is in sight. We are shooting for better malaria control. Everyday mosquitoes grow less effected by the incesticides and drugs (5). This allows the war between the human race and malaria to go on for a long time. Studies are being done. We are finding out more and more about parasites everyday. Although this disease has no cure it has many preventions and remedies. At this pace we are expected to find a cure soon (1).

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