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Foundations of Cancer

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Types of Cancer

Microbiology incorprates a strict and flourishing practice in determining which and what microorganisms contain pathogens. Pathogens are any kind of bacterium, fungi, or parasites that can cause disease, disabilities, or even death. A common sickness is cancer. Cancer has and will continue to be an incurable disease until further research simulates a cure. Cancer is the result of damaged or altered DNA. It can come in many forms such as stomach, liver, brain, lung, skin, you name it. Cancer can harvest itself at the site of any damaged DNA sequence. It is a very challenging and difficult disease for even the most intelligent doctors in the world to keep it from forming itself onto another human. This paper will outline three specific cancers: lung cancer, brain cancer, and cardiac sarcoma. The first two names are probably something many are familiar with; however, cardiac sarcoma is a particular muscle on the heart that can develop cancer if not forewarned about the situation. Let's dive deep into these topics to find a solution counter-attach this disease.

To begin, this paper will start off by discussing what cardiac sarcoma is. How does one get it, or what causes cardiac sarcoma? Are there any vaccines or treatments to delay or suppress it temporarily? The start of cardiac sarcoma begins in the heart or on a blood vessel that becomes cancerous. Cardiac sarcoma can appear in two ways: abnormal cells start to grow on the heart, or abnormal cells start to grow on any other nearby tissue and spread to the heart. This is a primary cardiac tumor vs a second cardiac tumor. First, primary starts "in" the heart, a secondary starts

"out " or "near" the heart. This disease comes from angiosarcoma. They usually form in the right upper atrium of the heart. As the tumor grows, it causes a blockage in the heart's right chamber . Many symptoms are involved in the process of this build-up. Shortness or increase of breath is the most common symptom. Other symptoms include swelling, or inflammation in the legs, abdomen (stomach area), ankles to the feet etc. A disturbing symptom is distended veins and arteries in the neck. This is because the blood pumped from your heart cannot pump or flow into a nearby organ, the brain, or anywhere else. Instead, it flows itself back to the heart; however, it cannot easily pump or flow back into the heart. Vessels and arteries volume starts to increase, causing them to become more visible to the public. According to the Rochester Medical Center, these signs and symptoms describe a primary cardiac tumor as mentioned earlier in introducing what cardiac sarcoma is. A secondary cardiac tumor can be more deadly since it has already spread from one organ to another. In some cases, cardiac sarcomas can replicate so fast, parts of the sarcoma fall off onto another organ such as the liver, stomach, or diaphragm. This can also happen if the patient has not been treated for a long time, causing embolibuild-up. Emboli are parts of or chunks of the sarcoma that has slowly peeled off the overgrown tumor. The symptoms of these mutations are far more drastic than what has been shown by the RMU. "The tiny pieces can affect the brain by causing a stroke. Or they can affect the lungs by causing shortness of breath." "Other symptoms can include coughing up blood (hemoptysis), heart rhythm problems, hoarse voice, or swelling in the face. Signs of cardiac sarcoma not related to where the tumor is in the heart may include fever, weight loss, night sweats, fatigue, and a general feeling of not being well"(URMC). Unfortunately, there is not a cure for this disease. Scientists, technicians, researchers, and developers are currently working on that. Next, this paper will discuss diagnostics and treatments of cardiac sarcoma cancer.

From discussing how cardiac sarcoma can start to form, in a few unique ways and how many symptoms are caused, there are a good amount of diagnostic tests used to determine if an individual tests positive or negative for this disease. Here is a list of a few tests and how they work: “CT scan. This imaging test uses X-rays and a computer to make detailed images of the inside of your body. These include bones, muscles, fat, and organs. CT scans can help your provider better see how big the tumor is, exactly where it is, and other features". “MRI scan. This imaging test uses large magnets, radio waves, and a computer to make detailed images of organs and tissues inside your body. This test also helps your provider better see the tumor's size, location, and other features.” “Biopsy. This is done by testing a small piece of the tumor. Other tests can suggest that the tumor is cancer, but a biopsy is the only way to know for sure”(URMC). There are around six to seven more techniques used in testing; however, look at how vast the diagnostics can run. This is just three out of maybe ten techniques discussed, and yet still, no cure can be found. How bizarre and unexplainable this can be for people who have lost their lives or have had to deal with a loved one slowly dying from it. There are treatments for this that have had some success. These treatments include surgery by removing the tumor, having a heart transplant, or auto-transplantation. Using surgery, surgeons are advised to perform chemotherapy to kill the cells at a cellular level in order to prevent the tumor from growing back. In having a heart transplant, the patient must awlays take prescribed medicine from his doctors after his transplan (if successful). This assigned medicine helps keep the body from shutting down after the transplant is completed; unfortunately, this medicine also increases the risk of the sarcoma recreating itself. This leads to the last treatment of auto-transplantation. The surgeon will remove the heart and deliver it to a pathologist for tumor removal. This can be done, like mentioned before, chemotherapy or radiation therapy. Once the tumor has been removed, the

heart will be placed back into the patient's body. There are plenty of benefits to this treatment in using chemotherapy and radiation therapy. One in particular is that there is no medicine needed to fight off the rejection the body carries post-procedure. Hopefully, this paper really opens the reader's eye in understanding the complexities cardiac sarcoma possesses yet not a cancer that is commonly heard of. In conclusion, the best way for patients diagnosed with heart cancer is to keep in contact with their healthcare provider and communication is key. There are medications for keeping the side-effects under control or keeping the body in a stable and healthy condition. Hopefully, an understanding is created in the reader's mind; therefore, this paper will move onto brain cancer next.

A more familiar kind of cancer is brain cancer. This type of cancer begins with malignant cancer cells forming a mass of cancer tissue within the brain. This formation can appear anywhere on the organ. The mass that is formed interferes with basic bodily functions such as muscle movement, mobility, and memory. Cancer cells that start forming in the brain are known as primary brain tumors. Brain cancer can occur due to hereditary genetic conditions or form as a secondary brain tumor where the cancer originated from a different part of the body and metastasized. Gliomas (a malignant tumor of the glial tissue of the nervous system) are the most common form of brain cancer. They have various subtypes including astrocytoma, oligodendrogliomas, and ependymomas. Brain cancer has four different stages, progressing with an increase in number: Stage one being a benign tumor (brain tumor that is not cancerous), and stage four being malignant tumors that appear abnormal and grow at a quick rate. Brain cancer seldomly spreads to other organs and is staged based on the cell type and grade of the tumor. The causes of brain cancer can be subjective. Some patients pass on that damaged DNA sequence or some patients' DNA is altered at random time. Like inhaling poisonous chemicals that lead to

lung cancer, blunt trauma to the head or extreme stress can also awaken a new tumor. This is more common in dogs than humans. There are a list of risk factors that go with brain cancer. One of these factors is age. Most brain tumors or cancer happen in older adults. A second factor is race. Anyone can get a brain tumor, but some types of brain tumors are more common in people of certain races. For example, gliomas are more common in white people, whereas meningiomas are more common in black people. Next, radiation is one of the most dangerous factors. Exposure to radiation increases the risk of brain cancer. This strong radiation is called ionizing radiation. The radiation is strong enough to cause DNA changes in the body's cells. The DNA changes can lead to tumors and cancers. Examples of ionizing radiation include radiation therapy used to treat cancer and radiation exposure caused by atomic bombs such as the bombs dropped in World War 2. In conclusion, there are no methods or ways to prevent brain tumors. If a person gets a brain tumor, they didn't do anything to cause it. People with an increased risk of brain tumor might consider screening tests. Screening isn't brain tumor prevention, but screening might help find a brain tumor when it's small and treatment is more likely to be successful.

This paper will cover the final topic of lung cancer. As many are aware, lung cancer is the second leading most diagnosed cancer in the world. It falls right behind skin cancer, but what makes lung cancer a constant trend is the developtment tobacco use and e-cigaretts. Lung cancer was discovered around the mid-1800’s (Civil War/Frontier Era). People in those times had set the standard that smoking is something only normal people do . This can also add to the Industrial Revolution when asthma was becoming common sickness until inhalers were made. Yet, lung cancer would eventually emerge as the new curse. States in the North were among the most common to get lung cancer or asthma. This is because the north worked with industry. Industry work includes smoke, coal, dust, rocks, shovels, and gas exposure. Since then, lung cancer has

had a large exponential growth. Even in today's world, advanced medical technology has still yet to beat cancer. Causes and risk factors are very easy to avoid. Put simply, do not smoke any cigarettes or e-cigarettes. Stay away from radiation zones or areas to prevent radiaition poisoning. One of the most important risk factors to keep in mind is radon. Radon is a natural gas found in rocks, soil and water. What makes radon dangerous is the gas is as clear as the wind. It does not have a smell, nor does it have a taste. This gas can easily creep into houses, factories, stores, restaurants, cracks in the wall or windows left open. Other small factors can include a person's diet, health condition, weight, working conditions. There are treatments for lung cancer. Surgery is a widely used technique in cutting out cancer. Chemotherapy is used as well: patients will either take medicated/prescripted pills or medicine will be applied into the veins or it can be used both ways. Another treatment is radiation: using energy rays to detroy lung cancer at an atomic level. Although these are good treatments, this only delays the inevitable of death. As mentioned before, cancer as a whole does not have a cure yet.

Cancer is one of the most difficult topics to figure out. Cancer is not just studied or practiced by one field of science. It has all fields working around the clock 24/7. Of all the three cancers discussed, lung cancer leads the death toll. Cardiac sarcoma is one of the few leading cancer deaths, while brain cancer has a mediu death tol. Microbiology, chemistry, biology, and anatomy, and other fields of science had significant scientific breakthroughs in medicine; unfortunately, the one curse they all have in common, that has not yet been liftied, is cancer. Is cancer really that complicated of a disease to cure? It may very well be. It is unpredicatble, unrecognizable pattern, does not have a limit to what it can infect. Thank you for the time taken to read this paper. Hope it can provide good intel some day.

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