Student Perspective

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Cancer Treatment: Still Finding the Magic Bullet

"We must search for magic bullets. We must strike the parasite and the parasite only, if possible, and to do this, we must learn to aim with chemical substance."
-Paul Ehrlich, Father of Chemotherapy

The argument for the effectiveness of chemotherapy whether it can prolong life has been going for a while. Scientists and doctors have constantly been coming up with new drugs that can help combat cancer cells. But over time, people have expressed frustration and started to question whether the tremendous amount of funds poured into the research for anticancer drug will eventually have a fruitful outcome. How serious are we in terms of finding a cure for cancer?

Based on the data provided by CDC (Center for Disease Control), cancer is the second leading cause of death in the US. Each year, 1M cancer patients undergo chemotherapy. Along the treatment line, these 1M people suffered from the dreaded side effects of chemo such as vomiting, nausea, and hair loss. After the treatment, patients always find it hard to have any food intake due to difficulty in swallowing. All these side effects however are signs of the chemo drug doing its job. The drug targets not only the rebellious cancer cells dividing uncontrollably but also healthy cells that normally would divide rapidly such as hair cells. At this point, chemotherapy might help our body system get rid of cancer cells but at great cost. The question remains: should chemotherapy still be recommended and should the million dollar research keep going on?

In recent years, chemotherapy has forwarded into monoclonal antibody and hormone therapy. On a molecular level of treating cancer, monoclonal antibodies bind to cancer cell-specific antigens and induce immune response to target cells. Hormone therapy involves taking medications that interfere with hormone activity or having glands to be surgically removed during the treatment. As all drugs go, these two treatments also have severe side effects. However, just recently, FDA just approved a patch called Sancuso that can be worn on patients who just went through chemotherapy aiming to remove the nausea and vomiting resulted from the treatment. Sancuso is a medicine that gets into the body through the skin. This patch is expected to be offered to the public by the end of the year. Other drugs that address the side effects are also available.

When chemotherapy was first started in practice in the 1940's, the goal in the science world was to be able to find the magic bullet that will shoot at the target specifically and directly as Paul Ehrlich the founder of chemotherapy had hoped. After two decades of research, scientists have still yet to fully uncover the complexity of cancer pathways. While cancer cells are constantly evolving new mechanisms to survive drugs, scientists are also brainstorming to find novel drugs to battle cancer cells. Chemotherapy may not be the answer but it can serve as an answer to cancer before the magic bullet is still to be discovered.