Research Assessment #4

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Subject: Angiogenesis Inhibitors

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      https://www.cancer.gov/about-cancer/treatment/types/immunotherapy/angiogenesis-inhibitors-fact-sheet

Assessment:

      Recently there have been so many new drugs and treatment options that have been developed for treating cancer. One of these is angiogenesis inhibitors. Angio means blood vessel, and inhibit means to stop, and angiogenesis inhibitors do just that - they stop the production, growth and survival of blood vessels (NCI). The reason that these blood vessels can be dangerous is that blood vessels cause an increase in production of tissue, which is needed, but when there is a growth of cancer or a tumor, there is a problem because the tumor will feed off of the new blood vessels; this approach to treating cancer is actually unique in that it doesn't directly affect the cancer cells or kill the cancer cells, but instead works to prevent the growth of blood vessels, which cause tumor growth (NCI).

      Angiogenesis inhibitors work in a multi-step process. There are some "monoclonal antibodies that specifically recognize and bond to VEGF" (NCI). VEGF stands for vascular endothelial growth factors. Angiogenesis inhibitors can also be used as "immunomodulatory drugs-agents that stimulate or suppress the immune system" (NCI). This treatment can prove to be useful for some patients more than others because it does not require the radiation that is needed for chemotherapy.

      However, there are some setbacks to using angiogenesis inhibitors. It can cause some serious side effects in some patients, including "hemorrhaging, blood clots, hypertension, reduced wound healing," among others (NCI). Although this treatment is very extraordinary and can be used to effectively treat cancer, there is only so much that it could do to help a patient. Another thing to consider is that some patients may be at higher risk for developing complications or some of the potentially dangerous side effects that are listed above. That is where my original work comes into play.

      I am working on using data like this to find what would be the most effective way to treat patients with a certain type of cancer, based on their own needs. For example, immunotherapy is a great alternative to chemotherapy, but it may not be for everyone. Some patients could be at a higher risk for having serious complications that they would not have had as much of a risk with if they had chosen a different treatment. The angiogenesis inhibitors may not be the most viable options for patients with pre-existing conditions that are connected with some of the side effects. For example, if there are patients with blood clotting issues, or the patient has a blood disorder, this may not be the best option because angiogenesis inhibitors work to inhibit the growth of new blood vessels. Of course, there are always things that could be compromised for and just because a patient suffers from a specific condition does not necessarily mean that they cannot have a certain treatment, because there are always ways to minimize the

risk of complications. Even though this is a very brief introduction into what I hope to achieve in researching for my original work, it nonetheless sets the stage for the next treatments that I will be evaluating.