

Avastin, or Bevacizumab, is an antiangiogenic drug that is used to treat numerous types of devastating cancer. There are several stages of cancer such as stage I, stage II, stage III, and stage IV. This drug is targeted to treat stage IV cancers, or otherwise known as metastatic cancers. In stage IV, the cancer cells are spreading throughout the body and the tumors are leeching off of the human body by creating their own lifeline. One way these adaptive tumors do this is by creating their own blood vessels. Bevacizumab is designed to prevent angiogenic growth, the growth of new blood vessels. Ideally, the tumors will not have access to the main circulatory system so the mass of cells will not be able to grow further from the access to nutrients. The tumor will not be able to take oxygen or nutrients away from the body as well as they will not be able to get rid of their waste products. This drug can be used for almost any metastatic cancer that is far enough advanced that is forming its own blood supply. Some examples of cancers this drug is commonly used for including breast, ovarian, lung, colon, rectal, kidney, and cervical cancers. This drug is most successful when metastatic cancers are treated with chemotherapy simultaneously. The chemotherapy will attack fast growing cells while Bevacizumab prevents blood vessel formation. This is an aggressive treatment of the cancerous cells as the cells are being treated two different ways with different techniques.

Bevacizumab is an IgG antibody drug that prevents angiogenic growth in unwanted, cancerous cells. This drug prevents cell survival and proliferation by binding to a protein that would aid in cell development. The bevacizumab antibody binds to a vascular endothelial growth factor, or VEGF, protein to inhibit the vascular endothelial growth factor from binding to the vascular endothelial growth factor receptor, VEGFR. If the VEGF ligand binds to the VEGFR then new blood vessels will be created to support the development of cells in that area. The VEGF protein is an organic component that is naturally found in the body to aid the growth in

many cells in different areas and systems of the body. This protein knows to bind to its receptor whether it is supporting healthy or harmful cells. This drug inhibits the activity of this protein for better or worse. This is why this drug can be used for numerous types of cancers with metastatic tumors in several areas of the body. When the bevacizumab IgG antibody binds to this protein, it changes the overall structure of the protein which inhibits its function. The vascular endothelial growth factor is found in the extracellular environment so; therefore, the antibody drug binds to the protein in the extracellular environment. This drug can prevent cancerous cells from creating new blood vessels by using the VEGF protein, but this drug also prevents normal and healthy angiogenesis that happens naturally in the body. Bevacizumab does not have a way to target only the VEGF proteins that are aiding in the proliferation of harmful cells.

References

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