NON-TECHNICAL ABSTRACT

Neuroblastoma is one of the most common cancers of childhood, affecting approximately 500 children each year in the U.S. A patient with the high-risk form of the disease has more than an 80% chance of relapsing after treatment. One way of trying to improve treatment is to stimulate the patient's immune system to attack the cancer using a "tumor vaccine". We placed genes that produced proteins which increase the function of the immune system inside tumor cells. We irradiated the cancer cells so they cannot grow, and then injected them under the skin. We first used a vaccine which made a protein called lymphotactin which draws in more immune lymphocytes to the site of a tumor and a protein Interkeukin-2 that helped to expand cells arriving at the tumor site. These proteins were made by a neuroblastoma tumor line from a patient. We injected these irradiated neuroblastoma tumor cells into 28 patients whose neuroblastoma had failed treatment. . (RAC 9712-223). There were no serious side effects and the tumors disappeared completely in 4 patients, and did not return in two of these: in 2 other patients the tumors got smaller. Hence, the neuroblastoma tumor cell vaccines appeared to do no harm and to have some benefit. In this current study we would like to see if we can get better results by adding a second, neuroblastoma tumor cell line (SKNLP). This second line will not have new genes inside it, but because it has a different structure to the first cell line, there may be a better chance that at least one of the two lines will be able to stimulate a response which will attack a structure also present on the patient's own cancer cells.. We will test the safety of these 2 neuroblastoma tumor cell line vaccines (one genetically modified , one not, but both irradiated) in patients who have been treated with chemotherapy for newly diagnosed, high risk neuroblastoma. As part of this treatment these patients will receive their own blood stem cells after intensive drug treatment, and at that time we will give the vaccine. We will see if this approach is safe and see whether the patients develop a response against their cancer and if there are effects on any tumors in the patient.