

Non-Technical Abstract

Chronic myelogenous leukemia is a malignant disease of bone marrow stem cells that within the 3-5 years progresses to an acute leukemia which is hard to cure. We therefore perform a transplantation using the patient's normal stem cells which live side-by-side with the leukemic stem cells. To obtain the normal stem cells, we will give patients high doses of chemotherapy as well as growth factors to kill off the leukemia and collect normal bone marrow and blood stem cells at the time the bone marrow cells are recovering after the chemotherapy treatment. These cells will be frozen and used for transplantation. Since one of the major problems with this treatment of CML is that the disease may come back after transplant and since it is unclear if this is caused by infusion of leukemia cells which are left in the harvested stem cell population or because not all the leukemia was killed after the patient received chemotherapy and radiation therapy, we will tag a small fraction (25%) of the harvested stem cells with a marker gene. On selected times after the transplant procedure, we will then collect blood and bone marrow cells to find out if in the event the patient has relapsed, the relapse is caused by cells that were infused, which now will have a genetic tag.