

Very Few Donors have Severe Side Effects from Donation Blood Stem Cell Donors have Fewer than Bone Marrow Donors

Important Points:

- **Less than 1% of donors have severe side effects from donation.**
- **Bone marrow donors have severe side effects 3 times more often than blood stem cell donors.**
- **Blood stem cell donors who get G-CSF do NOT get cancer, an autoimmune illness, or a stroke more often than those who don't get G-CSF.**

Many patients with blood cancers and other diseases improve after an allogeneic hematopoietic stem cell transplant (allo transplant). An allo transplant uses healthy stem cells from a donor to replace the patient's unhealthy cells. Doctors decide whether the donor should donate stem cells from the bone marrow or from the peripheral (circulating) blood.

When a donor donates bone marrow, they go to the hospital. While the donor is under anesthesia, a doctor puts a needle into the donor's rear hipbone to take out bone marrow. The doctor will put the needle in and take out bone marrow several times to get enough cells for the patient.

When a donor donates peripheral blood stem cells, they usually don't go to the hospital. The donor gets shots of granulocyte colony-stimulating factor (G-CSF), also known as filgrastim, for 4 or 5 days before donation. G-CSF helps move stem cells out of the bone marrow and into the bloodstream. Then the donor goes to a clinic and has a needle put into each of her arms. Blood is taken out of one arm, put through a machine that takes out the stem cells, and then put back in the other arm.

Donors can have severe side effects from donation. Examples of severe side effects include:

- Donor dies. (This did not occur in this study. It is a very, very rare complication.)
- Donor has a complication that puts them at risk of serious injury, such as damage to local tissue.
- Donor has to stay in the hospital longer than planned or has to go back to the hospital after leaving.
- Donor has chronic discomfort that may affect their normal life activities.
- Donor has any other serious medical problem.

In this study, the researchers wanted to know how often donors have severe side effects from donation. They looked at the difference between men and women, and they compared the 2 types of donation. They used data from 2,726 bone marrow donors and 6,768 blood stem cell donors who donated between January 2004 and July 2009.

The researchers found that severe side effects of donation are very rare. Less than 1% of donors (less than 1 in 100) have severe side effects. However, bone marrow donors have severe side effects 3 times more often than blood stem cell donors. Also, women have severe side effects 2 times more often than men.

The researchers also wanted to know if blood stem cell donors get cancer, an autoimmune illness, or a stroke more often than average. Donors get G-CSF to prepare to donate blood stem cells. Some doctors worry that this medication might make donors more likely to have problems in the future. This study shows that blood stem cell donors who get G-CSF do NOT get cancer, an autoimmune illness, or a stroke more often than those who don't get G-CSF.

In fact, both bone marrow and blood stem cell donors seem to be healthier than average. Both types of donors got cancer, autoimmune illness, and stroke less often than the normal population.

This is important information because we now know that very few donors have severe side effects from donation. Blood stem cell donors have fewer severe side effects than bone marrow donors, and they are NOT more likely to get cancer, an autoimmune illness, or a stroke.

Source:

Lower risk for serious adverse events and no increased risk for cancer after PBSC vs BM donation. Pulsipher MA, Chitphakdithai P, Logan BR, Navarro WH, Levine JE, Miller JP, Shaw BE, O'Donnell PV, Majhail NS, Confer DL. Blood. 2014 Jun 5; 123(23)2655-3663. Epub 2014 Apr 15.