



Younger Sibling Donors Better for Children and Teens Needing Transplants

Important Points:

- Children and teen patients who get transplants from their younger siblings get less GVHD than patients who get transplants from their older siblings.
- For adult patients, it makes no difference if a sibling donor is younger or older.

Many patients with blood cancers improve after an allogeneic stem cell transplant (allo transplant). An allo transplant uses healthy blood cells from a donor to replace the patient's unhealthy cells. However, some patients get graft versus host disease (GVHD), which is a serious side effect of transplant.

GVHD can cause problems with a patient's skin, stomach, and/or other body parts. It can range from mild to serious. Doctors often think mild GVHD is a good thing, but serious GVHD can be deadly. Acute GVHD usually appears within the first 100 days after transplant. Chronic GVHD usually appears 100 or more days after transplant.

To prevent serious GVHD, doctors use donors whose cells very closely match the patient's cells. The closer the cells match, the less likely the patient is to get serious GVHD. To find a donor, doctors first test the patient's siblings (brothers and sisters) to see if their cells match. If not, doctors look for an unrelated donor.

If more than one sibling's cells match the patient, then doctors and families have to decide which sibling should be the donor.

Previous studies show that patients who get transplants from their younger siblings do better after transplant than patients who get transplants from their older siblings. However, those studies only looked at patients from one hospital. This study looked at patients from many different hospitals. Researchers are more confident about study results when they include patients from many different hospitals.

In this study, the researchers wanted to know if patients did better after transplant if their donors were younger siblings. They looked at more than 11,000 patients who got transplants between 1990 and 2007. Some of these patients got transplants from sibling donors who were older than they were. Other patients got transplants from sibling donors who were younger than they were. The researchers divided the patients into three age groups: children (2-9 years old), teens (10-19 years), and adults (20 years and older).

From this study, researchers and doctors learned:

- For children and teen patients, a matched sibling who is younger than the patient is a better donor than a matched sibling who is older than the patient.
 - Children who get transplants from their younger siblings get serious acute GVHD and chronic GVHD less often.
 - Teens who get transplants from their younger siblings get chronic GVHD less often.
 - There is no difference between an older or younger sibling donor for children's and teens' survival or relapse (cancer comes back).
- For adult patients, there is no difference between an older or younger sibling donor.

Many factors decide whether a person would be a good donor for a patient needing a transplant. Some children and teen patients who need a transplant have two siblings who match and would be good donors.

When that happens, doctors and families may think the older sibling should donate. Older siblings are usually bigger, so doctors are more likely to be able to get enough cells to transplant into the patient. Also, older siblings understand better what will happen and can say that they want to donate.

However, this study shows that children and teen patients get less GVHD when their sibling donor is younger than they are. Therefore, if two siblings match and would be good donors and if one sibling is older than the patient while the other one is younger, then the younger sibling should donate.

Source:

Birth order and transplantation outcome in HLA-identical sibling stem cell transplantations: an analysis on behalf of the Center for International Blood and Marrow Transplantation. Dobbelstein C, Ahn KW, Haagensohn M, Hale GA, Van Rood JJ, Miklos D, Waller EK, Spellman SR, Fernandez-Vina M, Ganser A, Aljurf M, Bornhaeuser M, Gupta V, Marino SR, Pollack MS, Reddy V, Eder M, Lee SJ. *Biology of Blood and Marrow Transplantation*. 2013 May 01;19(5):741-745. Epub 2013 Feb 01.