

**Health Journal**

## **Banking Own Blood Offers Real Benefits Beyond Safety**

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**A FEW MONTHS** ago, 67-year-old Geraldine Magda gave blood for the first time in her life, but her donation didn't go to a blood bank.

Instead, one of the two pints she donated soon was pumped back through her own veins after hip-replacement surgery. Using her own blood helped allay Mrs. Magda's fears about having a transfusion. The decision also may have helped the Bayonne, N.J., resident avoid a potentially serious surgical complication.

For some time, patients have banked their own blood out of concerns about tainted supplies. But now there's growing evidence that surgery patients using their own blood -- known as autologous blood donation -- may reap significant medical benefits.

A recent study at New York's Hospital for Special Surgery found that autologous blood donors had a markedly lower rate of blood clots following hip-replacement surgery than patients who received transfusions from the regular blood supply.

The study, published in last month's *Journal of Bone and Joint Surgery*, reviewed the records of 2,043 patients who had undergone total hip-replacement surgery -- a procedure that commonly requires blood transfusion and results in a relatively high rate of blood clots. About half of the patients had donated their own blood prior to surgery.

**THE RESEARCHERS FOUND** that patients who received standard blood transfusions were, on average, 50% more likely to develop blood clots than patients who had received their own blood. In the group that didn't donate



Sergio Ruzzier

their blood, 13.5% developed blood clots, compared with only 9% of those who did.

The development of blood clots, a condition called deep venous thrombosis, is a potential complication following any surgery, although the risk varies depending on the procedure. Most patients who develop blood clots never have symptoms, but sometimes the clot can cause severe swelling and pain in the leg. The most serious complication from blood clots is a pulmonary embolism -- a life-threatening condition caused when a blood clot travels to the lungs.

In the study, the rate of pulmonary embolism was 0.7% in the standard transfusion group, more than twice as high as the 0.3% rate in the autologous group. But that part of the study isn't considered statistically significant, because so few patients developed the condition.

The overall lower rate of blood clots among autologous donors is believed to be related to the viscosity of a person's blood, says study author Geoffrey Westrich, assistant professor of orthopedic surgery at the Hospital for Special Surgery. The theory is that donating blood before surgery temporarily lowers the number of red blood cells. The blood is essentially thinner and flows more freely, making it less likely to clot.

Indeed, the study found that among a group of patients with naturally thick blood, 18% who received standard transfusions developed clots, compared with 10.5% in the autologous group.

About 5% of the blood given in the U.S. each year is from autologous donors. Patients are typically advised to donate their own blood only for procedures -- such as orthopedic, heart or vascular surgery -- that are more likely to require transfusions.

The body contains about 10 pints of blood, and depending on the procedure, autologous donors usually give either two or three pints, drawn over a two-to-three-week period just before the surgery. As a result, patients often take iron supplements to prevent anemia.

**RULES ON HOW** the blood is handled and stored vary by hospital. Sometimes it's kept in the regular blood bank, while other hospitals store it in a separate location. If the blood isn't used by the donor, it's discarded.

Insurance reimbursement for the donations varies, and hospitals sometimes charge extra if a patient wants to donate his or her own

blood.

Most people donate their own blood to avoid the risk of receiving an HIV-tainted supply. The chances of that, however, are only one per one million units transfused, according to an editorial last year in Mayo Clinic Proceedings.

But any patient can suffer other complications in a transfusion, such as infections or adverse reactions to antibodies in the blood. One out of every 12,000 patients is given the wrong blood type, for example, a mistake that causes one death for every 600,000 units transfused.

Autologous donors don't escape all those risks. Their blood, like any other, can still be contaminated by bacteria, a potentially fatal problem. Some researchers believe autologous patients may be at even a slightly higher risk for infection because patients giving their own blood typically are less healthy than volunteer donors. "It's rare -- but [self-donation] doesn't prevent that from happening," says Harvey Klein, chief of transfusion medicine at the [National Institutes of Health](#) and president of the American Association of Blood Banks.

Patients can also receive blood that isn't theirs. A 1992 survey by the College of American Pathologists reported that 1% of the institutions surveyed gave autologous blood to the wrong patient at least once in the previous year -- and half of them did it more than once. To avoid those problems, many hospitals require patients themselves to double-check the label of their supply.

That's what Mrs. Magda did before her April surgery. "It's that much more security," says Mrs. Magda. "It's your own blood coming from your own body."

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