

Advent of 'bloodless medicine' is helping some patients avoid transfusions

November 28 2022, by Denise Mann



Before Andrea Acerra, 45, had a hysterectomy due to heavy periods in

November, she received an iron infusion to boost her red blood cell count and stave off the need for a transfusion.

"I was just worried about side effects from the iron, but there were none," said Acerra, a senior medical assistant in Bay Shore, N.Y.

South Shore University Hospital in Bay Shore, where Acerra was treated, offers bloodless medicine as an option. The program screens people to see if they are a candidate for bloodless [surgery](#). So far, the surgeons there have performed various procedures using bloodless medicine techniques.

Also known as patient [blood](#) management, it is used when a [transfusion](#) is not an option for religious reasons or safety concerns. This concept was sired by the Jehovah's Witnesses community, which believes that it is against God's will to receive blood from another person. There are more than 8.6 million Jehovah's Witnesses across the globe.

Bloodless medicine became more widely used in the 1980s due to fears that donated blood may be contaminated by HIV and hepatitis C. This is no longer a concern as [blood donations](#) in the United States are screened for these infectious diseases along with several others.

Still, "there is a significant part of the population who can't or will not get a blood transfusion," said [Dr. Aaron Harrison](#), the associate medical director and a gastroenterologist at South Shore.

And thanks to bloodless medicine techniques, many of them won't have to, he added.

Having bloodless medicine as an option became even more important during the pandemic when the supply of donor blood dwindled, triggering a national shortage. "We don't have the blood available so if

we can get away without using blood and do things safely, it's ideal," Harrison said.

At South Shore, patients like Acerra are identified before they have surgery and if they are found to be anemic or unable or unwilling to have a blood transfusion, they are placed on a blood-sparing or blood-boosting protocol.

"We educate our physicians to bring up the subject that we can raise blood counts prior to surgery, to mitigate blood loss and the need for a transfusion," Harrison said.

"It's exciting, as I don't think anyone else around the country has a process to pre-screen patients," added [Dr. John Davis](#), the surgery director at South Shore.

The hospital already works closely with the local Jehovah's Witness community, so the new program is a natural offshoot, he said.

In addition to the use of iron and the hormone erythropoietin (EPO), which tells [bone marrow](#) to make more [red blood cells](#), there are other ways to reduce the risk of a blood transfusion before surgery.

For starters, "we can reduce the number of blood tests before the procedure and use smaller tubes to collect blood," Davis explained.

Another way to lower the chances that someone requires a transfusion is to stop the use of blood thinners before surgery so they don't bleed as much, said [Dr. Steven Frank](#), medical director of the bloodless medicine and surgery program at Johns Hopkins Hospital in Baltimore.

It's also important to stop taking certain herbal medications, vitamin E and [nonsteroidal anti-inflammatory drugs](#) (NSAIDs), as these may

increase the risk of bleeding during procedures.

"Keeping people warm during surgery also helps, as even mild hypothermia increases bleeding during surgery, and keeping blood pressure lower can also reduce bleeding," Frank said.

A drug known as [tranexamic acid](#) can be given to control bleeding, he said.

And then there is a technology that collects blood you lose, washes it, and gives it back during surgery. "This is considered the centerpiece of blood conservation," Frank said.

The advent of robotic surgery has also lowered the risk of blood loss during surgery, he said. "Yes, robotic surgeries involve smaller incisions than open surgeries, but the main difference is less bleeding and less need for transfusion," Frank said. "It is like night and day."

Blood transfusions can be lifesaving, but they also confer their share of risks.

Donated blood is not ideal, Davis said. "The blood is old and the number of cells in any unit that are effective and carry oxygen is a fraction of the total amount."

People can also have an allergic reaction to the blood itself, Frank said. "It is well known and proven that banked blood for a transfusion can put you at risk for hospital-acquired infection, as it suppresses your immune system," he said.

Transfusion-related acute lung injury (TRALI), transfusion-associated circulatory overload (TACO), and transfusion (ABT)-related immunomodulation (TRIM) are all risks of blood transfusions. TACO

and TRALI are lung-related complications that are the leading causes of transfusion-related deaths, Frank said.

"People forget about TRALI, TACO and TRIM, which are way more common than getting HIV or hepatitis C from a blood transfusion," he said. "Your chances of getting HIV or hepatitis C from a [blood transfusion](#) are the same as getting struck by lightning—about 1 in 2 million."

Bloodless medicine is becoming more mainstream due to the list of potential benefits, Frank said. "All of us benefit from what we have learned from the Jehovah's Witness community," he said. "With proper planning, with the right people and techniques—almost any surgery can be done without transfusions."

More information: The Society for the Advancement of Blood Management has more on [bloodless medicine](#).

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Citation: Advent of 'bloodless medicine' is helping some patients avoid transfusions (2022, November 28) retrieved 29 December 2023 from <https://medicalxpress.com/news/2022-11-advent-bloodless-medicine-patients-transfusions.html>

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