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Transfusion expert urges wider use of filtered blood

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Filtering white cells from donor blood before a transfusion is much safer for patients and long overdue as a national standard for all surgical procedures, according to University of Rochester researchers who present their analysis in the April journal, *Transfusion*.

The practice of removing the white cells from blood is called leukoreduction. But despite the recommendations of two national advisory committees in 10 years that voted in favor of all patients in the United States receiving leukoreduced blood, ("universal leukoreduction"), the practice is still not wholly supported in the medical community, nor recommended by the Food and Drug Administration. Part of the reason is fear of increased cost.

However, Neil Blumberg, M.D., lead author of the study and a proponent of leukoreduction, argues that several cost-benefit analyses show that an upfront increase of $25 to $35 for each unit of filtered blood is offset by savings from less use of antibiotics, reduced patient time in the ICU, and shorter lengths of hospital stays overall. One study, in fact, estimated that the savings in treating heart surgery complications alone could total $1 billion a year, nationwide.

"Rarely do we come up with a medical advance that saves money and is better for patients at the same time. This is as basic as washing your hands before conducting a physical examination of a patient," Blumberg said. "But despite much scientific evidence that supports this notion, millions of people today are still receiving transfusions that might

needlessly be harmful to them. The single most effective and overdue safety measure the FDA could take at this time is to mandate leukoreduction of all transfusions through its regulatory power."

Blumberg's group reviewed approximately 520 abstracts and nine published randomized clinical trials, on the risks and benefits of using leukoreduced blood. They assessed the statistical methods that were used in each study, and found what they believed to be flawed data in some cases. The chief problem, Blumberg's group discovered, was that some studies included hundreds of patients who never received blood transfusions. These patients would have been irrelevant to a study assessing the risks and/or benefits of certain types of transfusions, because they couldn't have benefited nor could they have been harmed by a transfusion. Furthermore, some studies used data that did not reflect actual investigative results, Blumberg said.

When the data was restricted to patients receiving transfusions, researchers found that post-surgical infection rates dropped from 33 percent to 23 percent. In other words, the relative risk of infection dropped by about 30 percent for the patients with leukoreduced blood.

"Our data would suggest that when you combine all of the safety measures that have been made to the blood supply since the AIDS epidemic, all of those safety adjustments combined are is still less beneficial to patients than the benefits of leukocyte reduction," Blumberg said.

Transfusions are done routinely, and some practitioners are not convinced they hold many risks. But doctors at the University of Rochester, leaders for two decades in the study of "transfusion immunomodulation," believe otherwise. Giving donor blood to someone, Blumberg said, is akin to a temporary organ transplant. In many cases the transfused blood modifies a person's immune system – either in a

favorable or unfavorable way – by interacting with the patient's own white cells.

Removing the foreign white cells from transfused blood reduces the chances of a negative reaction by the host immune system. In 1998 the University's Strong Memorial Hospital was among the first hospitals in the country to begin using leukoreduced blood for all cardiac surgery cases. Since then, the hospital has extended its leukoreduction practice to all patients, beginning in 2000.

Source: University of Rochester Medical Center

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