Blood transfusions are unlikely to spread cancer

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Individuals who receive blood transfusions from donors with undiagnosed cancers are at no higher risk of developing malignant disease than people who receive blood from donors without cancer, according to the results of a retrospective study published in *The Lancet* last month.

Before donated blood can be used in a clinical setting, it must go through a rigorous battery of tests to ensure that no diseases are passed between the donor and recipient. However, whereas the risk of transmission of infectious agents is well established and appropriate precautions are routinely taken, establishing whether there is also a possibility of transmission of chronic diseases such as cancer through blood transfusions has been more difficult.

There is some evidence to support the theory that cancers might be transmissible through blood. Even if a tumour is too small to be detected, it will shed millions of cells into the circulation every day that may have the potential to establish new malignancies within the donor or blood recipient. Reports of transmission of cancer cells from needles or surgical instruments demonstrate that tumours cells have the capability to be transplanted to, and develop in, healthy recipients. And there is some data to show that transfused patients are at increased risk of cancers, particularly non-Hodgkin lymphoma.

To test some of these ideas, Gustaf Edgren and colleagues set out to investigate whether there is a history of increased cancer diagnoses

among individuals that receive blood transfusions from people who donate blood while unaware of their cancers. Using registry data from Sweden and Denmark , the authors created a database from which they identified a group of “exposed” individuals, who had received donated blood from a person who was diagnosed with cancer less than 5 years after giving blood.

The study population comprised all individuals with no history of malignant disease who had received at least one unit of whole blood, erythrocytes, plasma or platelets between 1968 and 2002. All blood donors who contributed to these transfusions were traced through population and health registers and donors who were subsequently diagnosed with a malignancy within 5 years of the blood donation were deemed to harbour a sub-clinical malignancy at the time of donation. The resulting group of exposed individuals numbered 12 012; 342 082 people who received blood from non-precancerous donors were classed as unexposed.

Recipients of blood from people with a known history of cancer were excluded from the analysis as were those for whom 5 years of follow up was not available. All recipients were followed for cancer occurrence using the Swedish and Danish cancer registries. Any recipients diagnosed with cancer within 6 months of transfusion were excluded.

The researchers identified 978 cases of cancer among all the blood recipients but after statistical analysis they found no excess risk of cancer overall among individuals who had received one or more blood products from a precancerous blood donor. The relative risk was not substantially affected by sex age, calendar period, or number of transfusions. What is more, there was no excess risk when patients who received blood from people with cancers at sites that are thought to have the highest risk of metastasising through blood---the lung, liver, skeleton, and central nervous system---were combined.

An additional finding was that the cancer incidence among the 9377 recipients of blood from donors with a previous diagnosis of cancer who were excluded from the main analysis did not differ from that among recipients of blood from non-cancerous donors. “Since we found no increased cancer risk associated with transfusions from an admittedly limited number of donors with a previous history of cancer, it would seem that long-term cancer survivors might be a fairly safe donor group,” concluded the authors.

Source: European School of Oncology