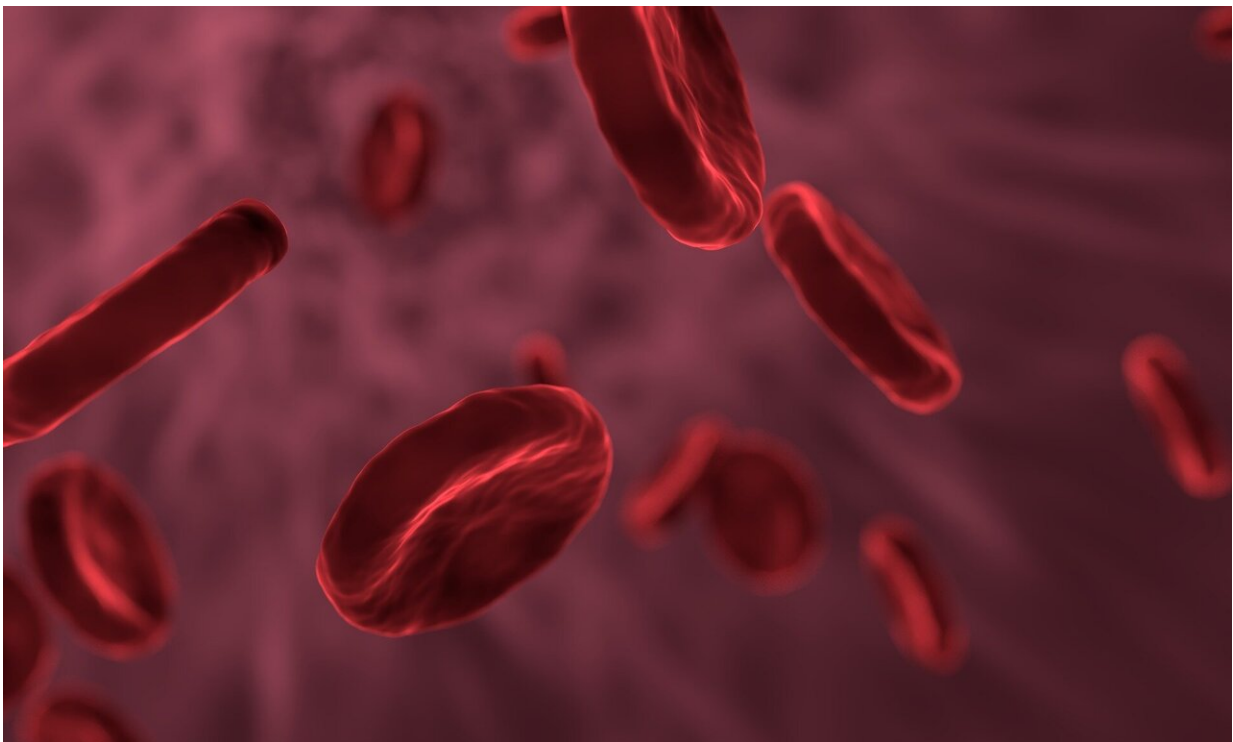


Blood type may offer insights into risk of blood clot in people with cancer

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A new *Blood Advances* study suggests that people with cancer and non-O blood types, such as types A, B, and AB, face an increased risk of developing venous thromboembolism (VTE), or blood clots in the veins, three months after their initial diagnosis. Scientists have long strived to understand the risk factors for VTE, the leading cause of preventable

hospital deaths in the United States. Existing assessments use factors like tumor or cancer type to detect those at high risk of VTE. Yet, many patients without these diagnoses still develop life-threatening blood clots but go unidentified.

VTE includes deep-vein thrombosis (DVT), a blood clot that typically forms in the deep veins of the leg, and [pulmonary embolism](#) (PE), a life-threatening condition that occurs when a blood clot breaks free and becomes lodged in the arteries of the lung. While these [blood clots](#) can affect anyone, existing research suggests that those with non-O blood types are more likely to develop VTE. Cancer and cancer therapies also increase one's chances of developing blood clots, and while people with severe forms of cancer are more likely to develop VTE, less research exists on the risk among patients with cancers less associated with thrombosis.

In the study, researchers investigated the role of non-O blood types in participants' likelihood of developing VTE. They collected data from 1,708 adult participants with a new or recurrent cancer diagnosis from the Vienna Cancer and Thrombosis Study (CATS) data set. Researchers grouped participants first by [blood type](#), then sorted them based on their [tumor](#) classification. Patients with pancreatic, gastroesophageal, and brain cancer tumors were considered to have high risk diagnoses. While tumor type can be useful in identifying people more likely to develop VTE, many people with less severe tumors still experience dangerous blood clots, and therefore may require additional monitoring and treatment. The study findings suggest blood typing may serve as another important predictive measure.

"We've known tumor type helps determine the baseline risk for VTE. But we continue to see that these risk assessments fail to capture all cancer patients who develop these blood clots," explained study author Cornelia Englisch, an MD-Ph.D. student at the Medical University of

Vienna. "By solely assessing tumor type, we miss up to 50% of people who develop VTE."

Their results indicated that patients with non-O blood types were more likely to develop VTE three months after their diagnosis or reoccurrence of cancer. According to Dr. Englisch, this association did not appear at the time of diagnosis because cancer therapies increase patients' likelihood of developing blood clots, making blood type a less significant predictor of VTE during early stages of treatment. Those with tumors outside of the high-risk disease category with non-O blood type were more likely to develop blood clots independent of time, showing that exclusively depending on tumor type to detect VTE risk may cause many patients to fall through the cracks.

Dr. Englisch noted that while novel, these findings are exploratory and still require additional study. Going forward, the investigators also aim to better understand the biological mechanisms underlying these findings. They hope that blood typing can serve as a useful tool in risk assessments for cancer-associated VTE in the future.

"Blood typing is easy to perform, can be done worldwide, and doesn't require any specialized background knowledge or equipment," said Dr. Englisch. "And of course, every risk factor that we identify helps us to understand these life-threatening complications in [cancer patients](#) better. Perhaps this will create awareness for the role blood types can play as clinical biomarkers."

More information: Cornelia Englisch et al, ABO blood group type and risk of venous thromboembolism in patients with cancer, *Blood Advances* (2022). [DOI: 10.1182/bloodadvances.2021006283](https://doi.org/10.1182/bloodadvances.2021006283)

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