

Drug dramatically reduces risk of dangerous blood clots in cancer patients

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Blood clots in the legs can cause swelling, redness and pain. If a clot forms in the lungs, it can be deadly. New research provides the first approach for safely preventing these clots in people with cancer. Credit: The Ottawa Hospital

A Canadian clinical trial published in the *New England Journal of Medicine* provides the first approach for safely preventing blood clots (or venous thromboembolism) in people with cancer. About half of people newly diagnosed with a solid cancer could be candidates for the strategy, which involves a low dose of a direct oral anticoagulant called apixaban.

"Cancer increases the risk of [blood clots](#), which in turn can cause pain, reduce quality of life and increase the risk of death," said senior author Dr. Philip Wells, a hematologist, senior scientist and Chief of Medicine at The Ottawa Hospital and the University of Ottawa. "Our study shows for the first time that we can safely prevent these clots in many people with cancer."

A key part of the study was the identification of cancer patients with a higher risk of developing [blood](#) clots. This was done using the Khorana score, which is based on blood tests results and other clinical factors. The researchers found that about half of all people starting cancer chemotherapy were in the higher risk group. They enrolled 563 of these patients from 13 Canadian centres in the trial and randomly assigned them to receive apixaban (2.5 mg twice a day for six months) or a placebo.

Of the 275 patients in the placebo group, 28 suffered a blood [clot](#) within six months (10.2 percent) compared to 12 of 288 in the apixaban group (4.2 percent). The researchers also looked at side effects related to bleeding, as these are known to increase with the use of anticoagulants. Three patients in the placebo group suffered a major bleed (1 percent) compared to six patients in the apixaban group (2.1 percent), but all bleeds were treatable.

"Anticoagulants are commonly used to prevent blood clots in other high-risk groups, but the traditional thinking has been that these drugs would cause too much bleeding in people with cancer," said first author Dr. Marc Carrier, a hematologist, senior scientist and associate professor at The Ottawa Hospital and the University of Ottawa. "Our study shows that if you select the right patients and use a relatively low dose of a direct oral anticoagulant, the benefits easily outweigh the risks."

With about 1.9 million people diagnosed with cancer every year in

Canada and the U.S., the researchers estimate that about half, or 950,000 could be considered for the blood clot prevention strategy tested in the study. In this population, the strategy would be expected to prevent clots in six percent, or 57,000 people. The preventative strategy would also save money, as treating blood clots can be very expensive.

This research means a lot to Harold Black, 76, who developed a [cancer](#)-associated blood clot in his lungs (pulmonary embolism) in September 2018. The large clot required two days of treatment and monitoring at The Ottawa Hospital, followed by ongoing daily heparin injections in the belly.

"I feel very lucky because I was told that the first sign of a pulmonary embolism is often death," said Black. "If this research prevents people like me from developing blood clots, that will make a big difference for a lot of people."

The blood clot (thrombosis) program at The Ottawa Hospital and the University of Ottawa is the largest and the most research-intensive in the world. With four publications in the *New England Journal of Medicine* since 2015, their research is transforming lives both in Ottawa and around the world.

"I want to thank the outstanding physicians, nurses, research coordinators and other members of our thrombosis team," said Dr. Wells. "But above all, I want to thank our patients for participating in our research and helping us improve care for them and others around the world."

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More information: Marc Carrier et al, Apixaban to Prevent Venous Thromboembolism in Patients with Cancer, *New England Journal of Medicine* (2018). [DOI: 10.1056/NEJMoa1814468](https://doi.org/10.1056/NEJMoa1814468)

Provided by The Ottawa Hospital

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