# International research team reports major findings in prevention and treatment of blood clots

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A worldwide research consortium that includes the University of Oklahoma Health Sciences Center has proven that a new drug is more effective and easier to use than current medicines in the prevention of blood clots following hip replacement surgery.

The results reveal a better way to prevent the formation of blood clots in the deep veins of the legs – a condition known as deep vein thrombosis (DVT). The blood clots become life-threatening pulmonary embolisms (PE) when they break free and travel to the lungs.

Gary Raskob, Ph.D., an internationally recognized DVT expert and dean of the OU College of Public Health, was co-author and a co-director of the study, which appears as the lead article in this week's issue of The *New England Journal of Medicine*. The study compared the drug Apixaban, given orally twice a day, to the current standard medicine, Enoxaparin, given twice daily by injection under the skin.

The randomized, double-blind trial involved more than 5,000 patients and showed Apixaban reduced the risk of blood clots, without increasing bleeding side effects.

"Each year, about 750,000 Americans undergo hip or knee replacement surgery and that number is growing rapidly. This is a major stride forward as we work toward better prevention of life-threatening blood

clots in these patients," Raskob said.

He added that the development of new oral anticoagulant agents, like Apixaban, has raised hope of a standard of care for DVT prevention that is as effective as or more effective than current standard approaches as well as being equally safe and more convenient for patients.

Raskob also was a primary author in another study published in the same issue of The *New England Journal of Medicine* focusing on the treatment of patients with established deep vein thrombosis.

"Despite the best current prevention efforts, blood clots still occur. So, it is important to continue to work toward better treatments as well as better ways to prevent blood clots," he said.

The second clinical trial, which included patients at the University of Oklahoma Health Sciences Center, found that the medication Rivaroxaban provided a simple, effective, single-drug approach for both short-term and continued long-term treatment of patients with deep vein thrombosis. Rivaroxaban is given orally in a fixed dose without the need for laboratory blood testing to monitor the anti-clotting effect. Current treatment methods, on the other hand, use two drugs, one given by injections under the skin once or twice a day for 5 to 10 days, followed by an oral medication that requires careful monitoring and dose adjustment based on results of regular blood tests.

"We are excited to have been able to participate in a study that is helping to advance the way we care for patients with deep vein thrombosis," said Suman Rathbun, M.D., a vascular medicine specialist at the OU Vascular Center. "Prevention is paramount, but we are not yet able to prevent 100 percent of these blood clots. So, it is important for us to continue to work toward new and improved treatments as well."

Scientists at OU and their colleagues worldwide are working diligently to find better and more practical tools to prevent and treat blood clots in the legs and lungs.

DVT affects at least 300,000 Americans each year. Most deep-vein blood clots occur in the lower leg or thigh. These blood clots can break off and travel through the bloodstream. When a clot travels to the lungs, the condition is called pulmonary embolism (PE), a serious condition that can cause damage to the lungs and death.

Researchers stress that while the results of the research released today are encouraging, the medications studied are not yet approved by the U.S. Food and Drug Administration.

Provided by University of Oklahoma