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The full report is titled “A Randomized Trial of Diagnostic Strategies after Normal Proximal Vein Ultrasonography for Suspected Deep Venous Thrombosis: D-Dimer Testing Compared with Repeated Ultrasonography.” It is in the 5 April 2005 issue of *Annals of Internal Medicine* (volume 142, pages 490-496). The authors are C. Kearon, J.S. Ginsberg, J. Douketis, M.A. Crowther, A.G. Turpie, S.M. Bates, A. Lee, P. Brill-Edwards, T. Finch, and M. Gent.

Diagnosing Deep Venous Thrombosis

What is the problem and what is known about it so far?

Deep venous thrombosis (DVT) occurs when blood clots form in the large veins of the legs. Pieces of the clot can break off and travel through the bloodstream to the lungs. The clots can cause serious symptoms and even death if they are not diagnosed and treated quickly. Because people with DVT are treated with blood-thinning medicines that can cause serious bleeding, accurate diagnosis is important.

Doctors use several strategies to diagnose DVT. These include a scan that uses sound waves to look at clots in the veins of the upper leg (ultrasonography), blood tests that help measure whether a clot has formed and is breaking down (D-dimer tests), and an x-ray taken after dye is injected into a foot vein (venography). Doctors may repeat an ultrasonography after 1 week if the initial scan is negative to see whether any small clot in the lower leg grew into the upper leg during the week. They may also do additional tests, such as venography, in patients with positive D-dimer test results. While all of these strategies seem to be reasonably accurate and safe, we do not know whether some are better than others.

Why did the researchers do this particular study?

To compare the safety of 2 approaches for diagnosing DVT.

Who was studied?

810 adults with suspected DVT and normal initial ultrasonography of the upper leg.

How was the study done?

The researchers recruited outpatients with suspected first episodes of DVT who had an initial normal ultrasonography of the upper leg. Patients were randomly assigned to receive either a D-dimer blood test or a repeated ultrasonography at 1 week. Patients with negative D-dimer test results and normal second ultrasonography results received no additional work-up and no blood-thinning medicines. Those with positive D-dimer test results had venography. If the venogram showed DVT of the upper or the lower leg, they took blood-thinning medicines for at least 3 months. All patients were then followed for 6 months to assess symptoms and any new DVT.

What did the researchers find?

The repeated ultrasonography strategy diagnosed fewer DVTs than the D-dimer strategy (0.7% vs. 4.7%). No patient who received blood-thinning medicines had bleeding problems. Among patients who did not receive blood-thinning medicines, only 1% to 2% in either group developed DVT during follow-up.

What were the limitations of the study?

50 of 402 people in the ultrasonography strategy did not return to get their second ultrasonography.

What are the implications of the study?

For adults with suspected DVT and normal ultrasound, a D-dimer–based strategy and a repeated ultrasonography strategy showed similar safety.

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