

## Risk for Fatal Pulmonary Embolism after Discontinuing Anticoagulation

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The full report is titled “The Risk for Fatal Pulmonary Embolism after Discontinuing Anticoagulant Therapy for Venous Thromboembolism.” It is in the 4 December 2007 issue of *Annals of Internal Medicine* (volume 147, pages 766-774). The authors are J.D. Douketis, C.S. Gu, S. Schulman, A. Ghirarduzzi, V. Pengo, and P. Prandoni.

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

Blood clots in the veins from the leg are a serious problem. When pieces of clot break off, the flow of blood carries them through the veins to the lungs, where they block the circulation to the lungs. The result is a pulmonary embolism, which can be fatal. Clots can also damage the leg veins, which can cause long-term leg discomfort and swelling. The treatment is anticoagulation (blood thinners), which interferes with normal blood clotting and gives the body’s natural mechanisms a better chance to dissolve the clot. Anticoagulation greatly reduces the risk for death from pulmonary embolism, but it can cause severe, sometimes fatal, bleeding. Usually, patients receive anticoagulation for 6 months if they are having blood clots for the first time. After stopping anticoagulation, some patients may have another pulmonary embolism.

Deciding when to stop taking anticoagulant drugs can be difficult because it involves weighing the risks of continuing therapy (a low risk for a new pulmonary embolism, but a continued risk for bleeding complications) against those of stopping therapy (no risk for bleeding, but a higher risk for new pulmonary embolism).

### Why did the researchers do this particular study?

To determine the risk for death from pulmonary embolism after anticoagulant therapy given to treat a first episode of blood clots in the leg veins was stopped.

### Who was studied?

The authors used data from 2 previous studies. The researchers in these studies observed a total of 2052 patients who had experienced a first episode of blood clots, had taken anticoagulant drugs for 3 to 6 months, and then stopped taking anticoagulants.

### How was the study done?

The researchers in the 2 previous studies watched their patients closely for an average of 4.5 years to identify those who died of a new pulmonary embolism. The authors of the current article calculated the frequency of a fatal pulmonary embolism among these patients.

### What did the researchers find?

Each year, between 0.2% (1 of 500 patients) and 0.4% (1 of 250 patients) had a fatal pulmonary embolism.

### What are the limitations of the study?

The patients were studied for only 4.5 years, so we cannot learn the risk for a fatal pulmonary embolism that occurs more than 4.5 years after stopping anticoagulant therapy.

### What are the implications of the study?

This study provides important information to help with decisions about stopping anticoagulation after blood clots in the legs or pulmonary embolism. However, the decision must take into account what happens if the patient stops taking anticoagulant drugs (which is shown in this study) and also what happens if the patient continues taking anticoagulant drugs. The rates of recurrent pulmonary embolism are lower if the patient stops anticoagulation than if the patient continues, but the physician must also consider the possibility of death from bleeding as a result of getting too much anticoagulation.

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