# Stopping treatment with blood-thinning drug can be fatal

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Patients being treated with the blood-thinning medicine warfarin should be wary of breaking off their treatment as they then run a considerable risk of developing blood clots in the brain.

Millions of people around the world suffer from atrial fibrillation (fast, irregular heartbeat), and thousands of them are treated with the blood-thinning drug warfarin.

New research shows that while these patients benefit from their warfarin treatment, they risk getting a blood clot in their brain if they suddenly stop taking warfarin. A blood clot in the brain can result in paralysis in the body – and can be fatal.

“Our study shows that you should be extremely cautious in breaking off your warfarin treatment – you could lose your life,” says Christian Torp-Pedersen, a clinical professor at the Department of Surgery and Internal Medicine at Gentofte Hospital in Denmark, and a professor of cardiac medicine at the University of Copenhagen.

“You should be far more cautious than people are today, when both doctors and patients are a little too relaxed about stopping this treatment for atrial fibrillation.”

#### Data in several registers correlated

The researchers reached their conclusion after studying data in several Danish registers, including registers for medicinal product statistics and for causes of death. These contain details about the many Danish patients treated with warfarin over the years, their doses, when they run out of medicine and when they get more, their illnesses and causes of death.

Statistics over the number of blood clots for every 1,000 patients during and after treatment with warfarin showed a significant increase in the number of blood clots in patients shortly after the patients stopped taking the medicine.

“Our mission was to study what happens to patients who run out of medicine or who break off their treatment for other reasons,” says Torp-Pedersen. “By correlating the data in these registers we could see that these patients have a considerable risk for a blood clot in the brain after a break or at the end of their treatment.”

The number of blood clots rose by 300 percent during the first 90 days after the treatment ended, then fell gradually and stabilised after 180 days.

“When warfarin is taken, there will be about three blood clots in every hundred patient-years,” says the professor.

“That equals the risk run by patients without atrial fibrillation – which shows that the treatment is quite effective. But if the patients break off their treatment, the risk immediately rises to three times as many, to nine blood clots in every hundred patient-years, and then falls gradually again.”

**Both doctors and patients have a responsibility**

Torp-Pedersen says there are many reasons why patients stop taking the medicine: the atrial fibrillation stops and the patient’s heart rhythm returns to normal; to avoid the risk of bleeding, the patient stops the treatment temporarily ahead of dental work or surgery and for some days or weeks afterwards; and some patients cannot tolerate the medicine’s side effects.

“Breaks in the treatment because of dental work or surgery should be as short as possible,” he says. “Such patients could change to another blood-thinning drug such as heparin for a period. Unlike warfarin, which requires a slow reduction, heparin treatment can be started and stopped quickly. High-risk patients should change to heparin.”

Apoplexy ? a blood clot in the brain ? is the most frequent cause of chronic disability in industrialised countries. (Photo: Wiki Commons) [7]
Blood_clot_diagram.jpg [8]

Fact box

Atrial fibrillation is the most common irregular heartbeat and results from a disturbance in the heart’s electrical system. Typical symptoms are tiredness, breathing difficulties and palpitations.

Warfarin is designed to treat blood clots. It is also used to prevent blood clots in special cases, such as patients who are bed-ridden for a long period or who have an irregular heart rhythm.

Fact box
Patient-year: a measure of time in a clinical context. 100 patient-years can represent one patient followed for 100 years, or 100 patients followed for one year.

Researchers can follow, say, 50 patients for two years and use the collected data to express, for instance, the number of blood clots in every patient-year.

Less blood clot damage with extra treatment [9]
Christian Torp-Pedersen's profile [10] About the Register of Medicinal Product Statistics [11] About warfarin (Medline Plus) [12]
Increased short-term risk of thrombo-embolism or death after interruption of warfarin treatment in patients with atrial fibrillation (European Heart Journal) [13]

Side story
Side story

**Static blood creates blood clots**

The relationship between atrial fibrillation and blood clots in the brain has been known for years.

During atrial fibrillation, the atrium of the heart is almost without movement, and static blood can form

small clots on the inner side of the atrium wall.

Clots like this often fall off the wall and are carried round the body by the blood. Normally the clots are too small to cause an injury, but if they pass through a thin blood vessel they can adhere to its wall and cause great damage.

The brain in particular is very sensitive to blood clots – brain damage or paralysis can arise when the blood cannot flow through the brain tissue as it should. In the worst cases, the patient dies.

In Denmark, the health authorities recommended treating patients suffering from atrial fibrillation with warfarin a decade ago. Its blood-thinning properties mean warfarin can prevent the formation of blood clots in the heart and thus reduce fatal blood clots in the brain.

**Atrial fibrillation hits the over-50s**

More and more people suffer from atrial fibrillation, which often hits people over the age of 50.

In patients suffering from atrial fibrillation, the normal source of impulses to the heart – the sino-atrial node, which ensures that the left and right atria contract uniformly – stops functioning properly. Instead, fast, irregular and changing contraction waves arise in the two atria.

However, a conduction system between the atrium and ventricle prevents extremely frequent activation of the heart's chambers, although the heart will often beat fast and always irregularly in atrial fibrillation. Patients will experience atrial fibrillation as an irregular and often fast pulse.

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Michael de Laine

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