

# Doctor, I am over the age of 75 and have atrial fibrillation. Which anticoagulant should I take to prevent stroke?

In people over 75 years old with atrial fibrillation, direct oral anticoagulants (DOACs) are more effective than warfarin at preventing stroke or systemic embolization and are less likely to cause intracranial hemorrhage. Based on indirect comparisons between different studies, apixaban (Eliquis®) might be the safest and most effective DOAC for elderly people with atrial fibrillation.

## What's the evidence?

### Understanding the problem

Atrial fibrillation is an abnormal heart rhythm that results in an irregular heartbeat. It is caused by abnormal electrical conduction within the small upper chambers of the heart. As a result, blood clots can form within these chambers and travel to the brain (causing a stroke) or elsewhere in the body (causing systemic embolization). Doctors recommend that most older people with atrial fibrillation take an anticoagulant to reduce their risk of stroke or systemic embolization.

Several large randomized controlled trials have shown that DOACs are as safe and effective as warfarin, an older blood thinner, for individuals with atrial fibrillation. However, these studies did not focus specifically on older individuals, and they did not compare the efficacy and safety of individual DOACs against one another.

Researchers conducted this systematic review to understand how DOACs compare to warfarin for older people with atrial fibrillation and determine whether one specific DOAC is safer or more effective than the others.

## The research

A summary of 5 studies published up to December 12, 2018.

**Who?** The studies included 27,639 people over the age of 75 with atrial fibrillation not related to problems with their heart valves.

**What?** The studies compared DOACs with warfarin.

DOACs	vs	Warfarin
Apixaban (Eliquis®) 2.5 mg twice a day, or 5 mg twice a day Dabigatran (Pradaxa®) 110 mg twice a day, or 150 mg twice a day Rivaroxaban (Xarelto®) 15 mg once a day, or 20 mg once a day Edoxaban (Lixiana®) 30 mg once a day, or 60 mg once a day		Warfarin, adjusted to maintain a target INR between 2 and 3

## What the researchers found

The quality of the individual studies was high.

**People taking a DOAC were 24% less likely to have a stroke or systemic embolization compared to those taking warfarin.**

**People taking a DOAC were 52% less likely to have an intracranial hemorrhage compared to those taking warfarin.**

Major bleeding **did not differ for people taking a DOAC compared with those taking warfarin.**

Eliquis® may have the best combination of safety and efficacy compared with other DOACs. However, this finding is based on indirect comparisons between different studies. These studies were conducted slightly differently from one another. A randomized controlled trial that compares different DOACs head-to-head is needed to confirm this finding.

**Please note:** These studies did not include people with atrial fibrillation caused by problems with heart valves, people with advanced kidney or liver disease, or people with active or recent internal bleeding.

## Summary of findings

**DOACs vs warfarin in people over 75 years old with atrial fibrillation (average age 79 years; 58% male)**

Outcomes	Results	Number of studies and quality of the evidence
Stroke or systemic embolization	<p>24% fewer people had stroke or systemic embolization while taking a DOAC compared to those taking warfarin.</p> <p>In other words, 76 people had a stroke or systemic embolization while taking a DOAC for every 100 people who had a stroke or systemic embolization while taking warfarin.</p>	<p>5 studies</p> <p>High-quality evidence</p>
Intracranial hemorrhage	<p>52% fewer people had an intracranial hemorrhage while taking a DOAC compared to those taking warfarin.</p> <p>In other words, 48 people had an intracranial hemorrhage while taking a DOAC for every 100 people who had an intracranial hemorrhage while taking warfarin.</p>	<p>5 studies</p> <p>High-quality evidence</p>
Major bleeding	<p>No difference in major bleeding between DOACs and warfarin.</p>	<p>5 studies</p> <p>High-quality evidence</p>

*This Evidence Summary is based on the following article:*

Malik AH, Yandrapalli S, Aronow WS, et al. **Meta-Analysis of Direct-Acting Oral Anticoagulants Compared With Warfarin in Patients >75 Years of Age.** *Am J Cardiol.* 2019 Jun 15;123(12):2051-2057. doi: 10.1016/j.amjcard.2019.02.060. Epub 2019 Mar 18. PubMed (<https://www.ncbi.nlm.nih.gov/pubmed/30982541?dopt=Abstract>)

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## Glossary

<b>anticoagulant</b>	medications that prevent blood clots from forming or travelling (aka blood thinner)
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<b>apixaban</b>	Eliquis®; anticoagulant pill that does not require blood tests to monitor the effect
<b>atrial fibrillation</b>	an abnormal cardiac rhythm that results in an irregular heartbeat, caused by abnormal electrical conduction within the small upper chamber of the heart (aka arrhythmia)
<b>dabigatran</b>	Pradaxa®; anticoagulant pill that does not require blood tests to monitor the effect
<b>DOAC</b>	direct oral anticoagulant; anticoagulant pill that does not require blood tests to monitor the effect (aka novel oral anticoagulant, NOAC); examples include apixaban, dabigatran, edoxaban, rivaroxaban
<b>DOACS</b>	direct oral anticoagulants; anticoagulant pills that do not require blood tests to monitor the effect (aka novel oral anticoagulant, NOAC); examples include apixaban, dabigatran, edoxaban, rivaroxaban
<b>edoxaban</b>	Lixiana®; anticoagulant pill that does not require blood tests to monitor the effect
<b>Eliquis®</b>	apixaban; anticoagulant pill that does not require blood tests to monitor the effect
<b>High-quality</b>	Additional studies are very likely to have the same result
<b>intracranial hemorrhage</b>	bleeding inside the skull
<b>Lixiana®</b>	edoxaban; anticoagulant pill that does not require blood tests to monitor the effect
<b>major bleeding</b>	serious bleeding (e.g. requiring a visit to the doctor or hospital, an invasive test to find the source of bleeding or a blood transfusion)
<b>Pradaxa®</b>	dabigatran; anticoagulant pill that does not require blood tests to monitor the effect
<b>randomized controlled trial</b>	study where people are assigned to a group purely by chance (e.g. tossing a coin)
<b>rivaroxaban</b>	Xarelto®
<b>stroke</b>	damage to the brain due to lack of blood supply (aka cerebral vascular accident or CVA)

<b>systematic review</b>	thorough search and evaluation of the available research evidence on a particular topic
<b>systemic embolization</b>	blood clot that travels from the heart or an artery to block blood flow within an artery (commonly within a limb or an internal organ)
<b>warfarin</b>	anticoagulant pill that blocks the liver from making normal clotting proteins (the proteins are still made but they don't work); requires blood tests to monitor the effect (aka Coumadin®)
<b>Xarelto®</b>	rivaroxaban; anticoagulant pill that does not require blood tests to monitor the effect