Oral anticoagulant therapy for stroke prevention in patients with atrial fibrillation: a narrative review

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Abstract

Background: *The use of direct oral anticoagulants (DOACs) for stroke prevention in patients with non-valvular atrial fibrillation (NVAF) has gradually increased since they were introduced in 2011. Today, more patients are treated with DOACs than with warfarin. As a result, the overall number of NVAF patients receiving oral anticoagulants has risen. However, it's not clear whether this increase has led to a lower rate of stroke.*

Main body: *This review examines clinical studies from various regions around the world that have investigated the relationship between increased anticoagulant use and the incidence of stroke and systemic embolism. Across the studies reviewed, a higher use of oral anticoagulants in the community was linked to a drop in ischemic stroke rates in patients with NVAF.*

Conclusion: *These cumulative findings suggest a negative correlation between increased oral anticoagulant use and the rate of ischemic strokes.*

Keywords: Direct oral anticoagulants, non-valvular atrial fibrillation, ischemic stroke

Introduction

The objective of this review is to examine clinical studies that have investigated the relationship between increased use of oral anticoagulants for stroke prevention in patients with non-valvular atrial fibrillation (NVAF).

Background

For decades, vitamin K antagonists (VKAs) like warfarin were the primary option for preventing stroke in patients with NVAF. Warfarin has been shown to significantly lower stroke risk though it also increases the likelihood of hemorrhagic stroke. Despite this, the overall benefit in reducing ischemic strokes generally outweighs the bleeding risk.[1]

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However, VKAs come with notable drawbacks, including the need for regular monitoring and sensitivity to diet and other medications. Treatment quality can also vary depending on several clinical factors.[2,3]

In contrast, direct oral anticoagulants (DOACs)—such as apixaban, edoxaban, dabigatran, and rivaroxaban—have proven to be at least as effective as warfarin for stroke prevention, with comparable or even reduced bleeding risk.[4] As a result, DOACs are now the preferred first-line therapy for patients newly diagnosed with NVAF.[3,4]

Since their introduction in 2011, DOAC use has gradually increased. This review analyzes how this increase in oral anticoagulant use has affected rates of ischemic stroke and bleeding complications in these patients.

Methods

We performed a narrative review using PubMed, Cochrane Library, and Scopus through the National Institute of Health's Library. The search terms included

"oral anticoagulant," "non-valvular atrial fibrillation," and "stroke."

The search generated was filtered to include conclusion dates between January 2011 and September 2025. Case reports and case series were excluded.

Results

One of the earliest studies was conducted by Mochalina at Skåne University in Sweden. This retrospective study included 11,500 patients from 2011 to 2013. It showed that oral anticoagulant (OAC) use was linked to a lower rate of ischemic stroke.[5]

A few years later, Orlowski and colleagues at the Health Economics Unit in Kingston House, England, retrospectively studied 2,575,669 patients from 2014 to 2017. Their retrospective study found an 11.3% reduction in ischemic stroke with increased OAC use.[6]

Around the same time, Hayder Kadhim at Umeå University in Sweden conducted a retrospective study of 310,551 patients. Their patient data covered 2014 to 2017. His team reported a 24% decrease in ischemic stroke associated with higher anticoagulant use. Together, these findings show a consistent trend: greater OAC use corresponds with lower stroke incidence.[7]

Discussion

Overall, this narrative review demonstrated a strong correlation between OAC use and lower stroke incidence. The introduction of DOACs as an option for stroke prevention in NVAF patients has benefited these patients by reducing the overall occurrence of stroke.

This trend is encouraging, as it shows meaningful progress in reducing stroke incidence among patients with NVAF. Healthcare professionals should continue to make strong efforts to educate patients about DOACs as an effective treatment option alongside warfarin.

Unlike warfarin, DOACs are associated with fewer drug–drug interactions, and do not require regular dose monitoring, which improves patient adherence. Because poor compliance with warfarin remains a major challenge, expanding awareness and access to DOACs can further strengthen stroke prevention efforts in these patients.[2,3]

While this review aims to synthesize current knowledge, it is important to acknowledge key gaps in the literature. All of the studies included in this review were conducted in Western countries. Patient characteristics differ in Eastern populations, which may affect outcomes. More research in these regions is needed to ensure findings apply to their population as well.

Because only a small number of studies have examined this correlation, and all reported consistent results, a meta-analysis could not be performed. Meta-analyses typically require a larger pool of studies with varying outcomes, which was not the case here.

Conclusion

These cumulative findings suggest a negative correlation between increased oral anticoagulant use and the rate of ischemic strokes. This trend highlights the public health impact of wider adoption of oral anticoagulants, particularly DOACs, in patients with NVAF. The data indicate that patients are benefiting from reduced stroke incidence, likely due to improved adherence and fewer complications compared with warfarin.

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