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# Atrial Fibrillation and Anticoagulation- Challenges and Considerations

## What is anticoagulation?

Anticoagulation describes a treatment that prevents blood from clotting. Clotting is a natural part of the body's response to injury, preventing blood loss. If clotting takes place when it is not needed, the resultant clots present significant health risks as they can block vital blood vessels in the brain and elsewhere.

## What is AF?

- Atrial: pertaining to the atria the top two chambers of the heart
- Fibrillation: the rapid, irregular, and unsynchronised contraction of muscle fibres

Atrial fibrillation (AF) is the most common heart rhythm disorder<sup>1</sup> and it is associated with debilitating consequences including heart failure, stroke, poor mental health, reduced quality of life<sup>2</sup>, and even death. Today, approaching a million Britons are diagnosed with AF,<sup>3</sup> and everyone aged 40 or over has a life time risk of developing AF of at least one in four.<sup>4</sup> For context, this compares with one in eight for breast cancer in women of the same age.<sup>5</sup>

## Why is anticoagulation needed in AF?

AF is the single most powerful risk factor for stroke, increasing an individual's risk of stroke by nearly 500%.<sup>6</sup>

Strokes from AF arise as the heart fails to pump properly, allowing the blood to slow and clots to form on the interior surface of the heart. If a clot breaks away from the surface it can be carried in the bloodstream to small vessels of the brain, they can cause blockages that result in strokes.

Consequently, antithrombotic therapy should be considered routine in most people with atrial fibrillation. Strokes from AF are also considerably more problematic than non-AF strokes. AF-related strokes result in greater disability, social dependency and death;<sup>7,8</sup> they are more expensive<sup>9</sup> and they are more likely to recur in the absence of effective treatment.

Current guidelines recommend that 97% of AF patients should be prescribed an oral anticoagulant (OAC) to ensure adequate reduction of stroke risk.<sup>10</sup> Yet data from the National Institute of Health and Clinical Excellence (NICE) indicates that only 54% of AF patients in need of OAC treatment are receiving treatment.<sup>11</sup> Even accounting for those unsuitable for OAC therapy, this represents vast under-utilisation of life-saving anticoagulation treatment.

NICE comments that more than 166,000 known AF patients should be on OAC but are not.<sup>12</sup> Given that AF is directly responsible for 12,500 strokes in the UK each year,<sup>13</sup> a clear opportunity to save thousands from death and disability is being missed by a significant margin.

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## What treatments are available?

For the last 50 years, a group of drugs called the vitamin K antagonists (VKAs) have been the mainstay of OAC treatment. These drugs prevent the normal action of vitamin K, which is vital for the production of several proteins essential to the blood clotting process. Of these drugs only one, warfarin, is used routinely in clinical practice. Multiple clinical trials have shown that well-controlled, dose-adjusted warfarin is a safe and effective therapy, having been shown to reduce the risk of stroke in AF patient by up to 68%.<sup>14,15,16</sup>

However, warfarin has a narrow therapeutic range and it interacts with many common foods and medicines. Consequently, warfarin requires close monitoring and frequent dose adjustments to ensure that patients receive a dose that consistently maintains a reduced risk of stroke without increasing the risk of bleeding.

*“You have to visit the hospital very regularly, sometimes every week or every fortnight if the drug does retain the normal therapeutic level, but more often than not, it fluctuates.” Evelyn, 89*

Despite the wealth of clinical trial evidence, warfarin is only prescribed for 54% of those in need of it<sup>17</sup> and, among those on warfarin, only 56% are found to be within therapeutic range.<sup>18</sup> As a result, a significant majority of AF patients, in need of OAC, remain at high risk of stroke.

## What are the current challenges?

Warfarin can be, and for many patients is, an effective and safe therapy for those at risk of stroke because of AF. The challenge is to effectively reduce the risk of stroke in key groups of patients with AF:

1. Those among the 45% not receiving the OAC therapy that they need,<sup>19</sup>
2. Those among the 44% not currently within the therapeutic range of warfarin.<sup>20</sup>
3. Those unable to tolerate warfarin therapy

Various studies have reported different figures for time in therapeutic range (TTR), which has been found to range from 30% to 75%.<sup>21,22,23</sup> There is insufficient data available to determine the typical TTR for a UK patient on warfarin but it can reasonably be expected to vary considerably according to the availability and sophistication of local anticoagulation services.

For patients, the challenges of frequent clinic visits for monitoring and dose adjustments contribute to under use of warfarin, as does the need for lifestyle changes as patients avoid certain foods, drinking and travel.

*“I worry if I have a glass of wine on a Sunday with my daughter, or if I eat green vegetables. I love sprouts but they have been such a problem.” Alice, 59*

The importance of these lifestyle changes was recently endorsed in a statement from the British Medical Association,

*“...It is all well and good to say that everyone with atrial fibrillation should be on warfarin, but the reality is that patients do not always want it ... Warfarin is not always right for patients –*

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*warfarin can be very dangerous for patients, and we have to make the right choice for the patient.” BMA 2011<sup>24</sup>*

There are then, several groups of patients for whom warfarin might reasonably be avoided despite a high risk of stroke, these include:

- The elderly, particularly those with multiple risk factors and, hence, on polypharmacy
- Those who object to warfarin because of dietary and lifestyle impact
- Those intolerant of warfarin
- Those who are needle phobic
- Those with limited ability to attend monitoring appointments such as the immobile, those in care homes and those living in rural areas

When considering the significant under-utilisation of warfarin, there is evidence that greater engagement with patients might result in more widespread OAC use. In one study, physicians, and patients at high risk of stroke were asked the same set of questions about when anticoagulation therapy was justified according to the reduction in stroke risk. Following in-depth explanation of the bleeding risks involved, 74% of the patients were willing to take warfarin if it prevented just one stroke in 100 patients over two years. Yet, when asked the same question, only 38% of physicians were willing to prescribe warfarin for the same risk reduction.<sup>25</sup>

Beyond engaging patients in treatment decisions, simple audit tools for GPs, such as GRASP-AF, can help increase warfarin utilisation through the automatic calculation of patient stroke risk and the identification of those untreated patients for whom warfarin should not be withheld.

Regardless of the potential in the measures outlined above, the consequences for physicians of patients not being in therapeutic range are considerable, as are the challenges to maintain therapeutic levels of warfarin, with over 98% of warfarin patients making regular clinic visits for monitoring and dose adjustment. The management of the most vulnerable patients such as the elderly is also greatly complicated for physicians by multiple risk factors, polypharmacy, dementia, non-adherence to therapy and by inconsistencies in approaches to anticoagulation management throughout the health service.

## Conclusions

Prompt AF diagnosis and stroke risk assessment reduces avoidable deaths and disability.

Only about half of AF patients at risk of stroke are prescribed the OAC therapy they need. Of these, only about half are maintained within the therapeutic range.

Effective stroke risk reduction with warfarin is possible with intensive management strategies.

The use of aspirin for stroke reduction in AF, is not considered a safe or effective option.

To address individual patient needs effectively, physicians need to engage them in treatment decisions having first ensured adequate understanding of the options and their implications.

Strict adherence to current guidance will reduce the burden to the individual and society of AF-related stroke, as will access to treatments other than warfarin in those patients for whom it is unsuitable.

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For more information on all these issues please read the AF Report, available from the AFA website, [www.afa.org.uk](http://www.afa.org.uk) and from [www.preventaf-strokecrisis.org](http://www.preventaf-strokecrisis.org).

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