

## Warfarin therapy

This factsheet is intended to help those affected by atrial fibrillation (AF) understand the medication warfarin, with a brief introduction to how it works, dosing and side effects.

### Introduction

Warfarin is an anticoagulant tablet. Its name originates from the Wisconsin Alumni Research Foundation (WARF), which was involved with its initial development in 1944. It was initially marketed as a pesticide against rats and mice, and is still popular for this purpose. After its introduction it became clear that it was an effective and relatively safe form of prevention for thrombosis and embolism (abnormal formation of blood clots that travel in the circulation and cause problems elsewhere in the body by blocking arteries or veins. It requires active monitoring as its suitable dose varies from person to person. The blood test which is either taken in the normal way or as a finger prick test, checks the international normalised ratio (INR).

The INR compares how fast blood clots compared to an international standard. As INR is an internationally recognised test, it can be used by healthcare professionals around the world.

Warfarin is commonly referred to as a blood thinner, but technically it does not thin the blood. It rather makes it less sticky and less prone to form clots.

### How does it work?

Warfarin acts on the liver to prevent the formation of the proteins that go on to create fibrin which is the basic component of a clot. It does this by stopping vitamin K in our diet from helping the liver to produce these proteins. As our bodies have stores of these proteins that last a

few days warfarin will only start to thin the blood efficiently after a few days. In the same way when you stop warfarin it takes the body a couple of days to replace these proteins and so the blood thinning effect will remain for a few days after you stop.

As well as acting on the liver, warfarin is removed from our bodies by the liver. We all vary in age, size and gender, take different medications and consume different amounts of alcohol and vitamin K in our food, and all these things influence how much warfarin we require for it to become effective. The more vitamin K is ingested, the higher our warfarin requirement will be, and vice versa. This is why the dose needs to be tailored to each individual, and also for example when on holiday, taking a course of antibiotics, or significantly changing the food we eat.

To prevent an AF-related stroke, the blood needs to take two or three times longer to clot than normal, so the INR target range needs to be between 2 and 3. By measuring the INR, anticoagulant (warfarin) clinics ensure that your blood is thinned to just the right amount. Too little warfarin (INR<2) won't have the full benefit of preventing strokes, whereas too much warfarin (INR>4) thins the blood too much and can put you at risk of bleeding heavily when you cut yourself and of bruising badly when you fall. When you first start taking warfarin you will attend the anticoagulant clinic frequently as they adjust your dose to suit you. Most people find once they are established on warfarin their INR is pretty stable and they need only attend the clinic every four to six weeks.

However you have to watch out for things that can affect your warfarin level to keep it stable. One of these is alcohol. Taking alcohol in itself is not a large problem but changing your average alcohol intake will alter how much warfarin you require. Another thing you have to watch out for is medications including cough remedies, herbal

cures and many other over-the-counter medications. In short you are fine to have a couple of paracetamol for a headache but anything else you should seek advice of your doctor or local chemist.

As your warfarin level can change without you realising it, you should take care to avoid cuts and bruises; for instance use a thimble if you are sewing, use an electric razor when shaving, etc. This all can sound a bit daunting but the vast majority of people who take warfarin do so without any problems.

### Dosing

Warfarin tablets are colour coded to help patients manage dosage.

Dose	Colour
0.5mg	White
1mg	Brown
3mg	Blue
5mg	Pink

When taking warfarin you may be asked to take various combinations of tablets:

'Take two browns and a white' to achieve a dose of 2.5mg'

Or you may be asked to break a tablet in half to achieve a dose:

'Take half a pink tablet' to achieve a dose of 2.5mg'

It is important to follow the advice of the clinic to ensure your warfarin is taken at the correct level to ensure your INR is in acceptable range.

It is important to keep a note of your INR, warfarin dose and next appointment and this is usually done with the aid of a yellow warfarin therapy book. This book should be taken to each of your clinic appointments.

### Side effects

**Haemorrhage (bleeding):-** A medication that thins the blood will make you more likely to bleed. Haemorrhage is when you bleed excessively due to the blood being thinned too much. In a well monitored warfarin service this risk should be reduced to less than 1%.

**Bruising:-** This is caused by suffering small bleeds underneath the skin. If you notice you are bruising without injury then it is advisable that you contact your doctor or the warfarin service caring for you in order to have your INR assessed.

**Diarrhoea:-** Warfarin can cause diarrhoea which generally only stops on discontinuing the medication. If this is the case, there are alternative blood thinning agents which may be discussed.

**Hair Loss:-** Warfarin is known to cause hair thinning and hair loss and on very rare occasions has been blamed as the cause complete alopecia. This is not a common effect and the hair usually regrows when warfarin is discontinued.

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