



Make your Health a matter of the Heart

Stroke Prevention in Patients with Atrial Fibrillation



Dear reader,

This brochure provides you with information about atrial fibrillation, one of the most common heart rhythm disorders in adults. The condition can become noticeable as a racing heart, skipped beats, dizziness, exhaustion and breathlessness. However, the rhythm disorder can also occur without any symptoms at all. For this reason, it frequently goes unnoticed for a long time.

Atrial fibrillation in itself is not life-threatening, but the potential complications are dangerous. For example, there is a considerably increased risk of a stroke occurring and this must therefore be systematically prevented. This can be done by taking an anticoagulant and by following a healthy lifestyle with regular physical exercise.

The following pages explain how atrial fibrillation develops and what sufferers should be aware of when their heart gets out of sync in this way.

Happy reading!

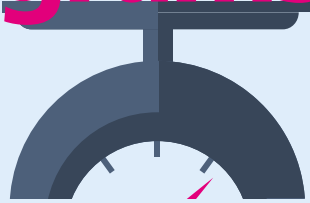
This brochure is intended to provide information about atrial fibrillation but is no substitute for consulting your doctor.



The Heart

Our heart is located on the left side of the chest and weighs about

**300
grams**



It beats around

**100,000
times a
day**



pumping the blood through the blood stream like an engine.

A constant blood flow is vital. It is necessary to supply the organs with oxygen and nutrients and to dispose of carbon dioxide and any unusable end products of metabolism. The “engine power” is produced by from the rhythmic contraction and relaxation of the heart muscle. It is a hollow muscle that is composed of special muscle cells, known as myocardial cells.

Blood flow in the heart

The heart muscle is composed of four chambers, the two “atria” of the heart (left and right atrium) and the two main chambers (left and right ventricles). They are separated from one another by the septum of the heart and the blood flow is regulated by heart valves. They open and close alternately, so that each time the heart muscle pumps, the blood can only flow in one direction. The heart valves therefore act like doors to ensure that the blood flows in the right direction and cannot flow backwards.



Around five liters per minute, i.e. 7200 liters per day, flow through the blood circulation.



On exertion, for example during exercise or in stressful situations, the heart’s output can be increased considerably.

Electrical Impulses Act as a Pacemaker

The contractions are produced by an electrical conduction system that functions as a pacemaker. The hub of this process is the sinus node, a group of cells in the wall of the right atrium, from which the electrical signals are conducted as impulses along special nerve pathways to the muscle cells of the heart. They set the heart's rhythm. The normal rhythm is known as sinus rhythm. If the normal sequence is disrupted, the heart gets out of sync.

As a result, it no longer works effectively, and disorders occur in the blood flow within the heart. This can cause blood clots, or thrombi, to form. These can be transported with the blood flow to the brain, where they cause the blockage of a vessel, thereby triggering a stroke.



Facts about Atrial Fibrillation

The number of **people with atrial fibrillation in Germany** is currently estimated to be around **1.8 million**. The risk of developing this kind of arrhythmia increases with age. In most cases, therefore, people with atrial fibrillation are elderly. This should not obscure the fact that atrial fibrillation can also occur at a younger age. Nevertheless, it is markedly less common than in old age.

However, around a third of people with atrial fibrillation do not notice the rhythm disorder. That explains why it is often not diagnosed or, if it is, only after a considerable delay.

However, the risk of a stroke occurring is just as high in people without symptoms as in those with symptoms of atrial fibrillation.



Symptoms of Atrial Fibrillation

Atrial fibrillation can present itself in a variety of symptoms. These include:

- ◆ Racing heart and/or skipped beats
- ◆ Palpitations and/or the unpleasant awareness of one's own heart beat
- ◆ Pain or a feeling of pressure in the chest region
- ◆ Exhaustion
- ◆ Breathlessness
- ◆ Dizziness



Treatment of Atrial Fibrillation

Risk Factors for Atrial Fibrillation

There are a variety of factors and situations that can promote atrial fibrillation and the associated complication of a stroke.

Known risk factors are:

- ◆ Old age
- ◆ Diabetes
- ◆ High blood pressure (hypertension)
- ◆ Heart failure
- ◆ Unhealthy and in particular sedentary lifestyle

The risk of stroke is also increased in people with a history of stroke.

Possible Causes and Triggers

Regardless of the risk factors, there are various potential triggers of atrial fibrillation.

These include:

- ◆ Inflammation of the heart muscle
- ◆ Pulmonary embolisms
- ◆ Chronic lung diseases
- ◆ Heart valve disorders
- ◆ Coronary heart diseases
- ◆ Thyroid function disorders
- ◆ Severe general infections
- ◆ Surgery
- ◆ High blood pressure
- ◆ Excessive alcohol consumption, rich meals and caffeine
- ◆ Smoking, lack of sleep, emotional stress

In many patients, however, no concrete cause can be found.

The treatment of atrial fibrillation involves restoring the heart to its proper rhythm, i.e. sinus rhythm, so as to relieve the symptoms and also reduce the risk of stroke.

There are various options in this respect – ranging from medication that is designed to normalize the hearts rhythm, to what is known as cardioversion where the heart is brought back into rhythm using electric shocks and also so-called catheter ablation, a surgical procedure to remove possible interference fields that cause the rhythm disorder.

Regardless of which procedure is selected, most patients require treatment that thins their blood (anti-coagulation) and thereby generally reduces the risk of stroke. This is because, even after successful treatment and a return to sinus rhythm, there is the possibility that atrial fibrillation will reoccur, possibly without causing any symptoms and therefore going unnoticed. In that case, there is inevitably once again a high risk of stroke.



Effectively Preventing Stroke

Nowadays, there are effective options for reducing the risk of stroke associated with atrial fibrillation. Probably the most important measure involves preventing the formation of blood clots.

This is possible with anticoagulants, i.e. medication that reduces the blood's tendency to clot. Anticoagulants make the blood less thick and prevent blood cells from clumping together and thereby forming blood clots (thrombi).

Anticoagulation is achieved with various active substances. It used to be customary to administer what is known as vitamin K antagonists (e.g. Marcumar®). As well as requiring the tablets to be taken regularly, the treatment also involves blood tests to monitor blood clotting. This is because the action of the substances not only differs on a case-by-case basis but can also be affected by a number of factors. These include taking other medications (potentially including over-the-counter medications) as well as the consumption of foods with a high vitamin K content such as spinach, cauliflower, beans, broccoli, lentils, red cabbage and many others.

With vitamin K antagonists, regular blood tests – and, where necessary, adjustment of the dose of the medication – are required to ensure a high degree of efficacy but without unduly increasing the risk of bleeding.

More recent anticoagulants known as NOACs (non-vitamin K antagonist oral anticoagulants) offer an alternative. This term refers to substances that reduce the clotting of the blood independently of vitamin K by inhibiting a specific enzyme in the clotting cascade. Routine monitoring of blood clotting is not necessary during treatment with a NOAC. Moreover, there are few if any interactions with other medications and no dietary restrictions. The medications are also taken as tablets and in some cases, it is sufficient to take a single daily tablet to obtain effective protection. In this way, stroke prevention can be achieved in a simple and straightforward manner in everyday life.



In addition, a healthy lifestyle – i.e. a balanced diet and regular physical exercise – can help to reduce the risk of stroke. Nevertheless, a healthy lifestyle is no substitute for taking an anticoagulant in case of atrial fibrillation.



About Bleeding

One inevitable side effect of anticoagulation is that the tendency to bleed is somewhat increased. This applies to all anticoagulants and is directly attributed to the mechanism of action of these substances.

This should not cause an excessive fear of bleeding, though, as anticoagulants do not inhibit blood clotting, but only slow it down.

As a result, bleeding can occur more easily, for example nosebleeds or gum bleeds. Furthermore, bleeding from injuries may be somewhat heavier than before. If bleeding does occur, this will be treated as in any other case.



Nevertheless, it is advisable to carry an appropriate patient passport with you at all times. That way, in case of an emergency situation like a major injury or accident, the doctor is immediately informed that you are taking an anticoagulant.





Practice stamp