Arrhythmia Alliance
www.heartrhythmalliance.org

Drug treatment for heart rhythm disorders (arrhythmias)

Working together to improve the diagnosis, treatment and quality of life for all those affected by arrhythmias

www.heartrhythmalliance.org
Registered Non-Profit 501(c)(3)

Glossary

Ablation A procedure that scars tissue in your heart to block abnormal electrical signals. It is used to restore a normal heart rhythm

Arrhythmia Irregular or abnormal heart beat that may be excessively fast or slow

Atrial Relating to the upper chambers of the heart

AV node The electrical connection point between the atria and ventricles

Cardiologist A doctor who has specialized in the diagnosis and treatment of patients with heart conditions

Implantable cardioverter defibrillator (ICD) A small device implanted in your chest, connected to the heart, that regulates your heart rhythm if it becomes abnormal

Paroxysmal AFib Atrial fibrillation that spontaneously settles

Prolonged QT interval Delayed recovery of the heart beat as reflected on the electrocardiogram

Torsade de pointes A life-threatening arrhythmia

Ventricular Relating to the lower chambers of the heart

Contents

Important Information

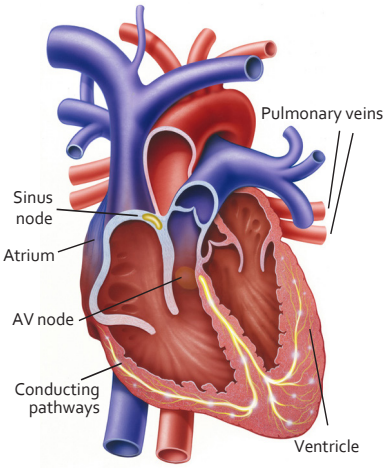
Heart rhythm disorders, or arrhythmias, can be treated in a variety of ways. Some require no more than reassurance after diagnosis, but others may need drug therapy, implantation of an electrical device such as a pacemaker or ICD, internal treatment (ablation) to remove an abnormal circuit (a focus or pathway) within the heart or even a combination of treatments. The correct treatment for your particular problem will have been discussed with you by your cardiologist or arrhythmia nurse; this booklet will attempt to answer any queries or concerns that you may have with regard to drug treatment for arrhythmias.

The normal electrical system of the heart

The heart has its own electrical conduction system. The conduction system sends signals throughout the upper (atria) and lower (ventricles) chambers of the heart to make it beat in a regular, coordinated rhythm. The conduction system consists of two areas called nodes that contain conduction cells and special pathways that transmit the impulse. The normal heartbeat begins when an electrical impulse is fired from the sinus node (SA node), in the right atrium. The SA node is responsible for setting the rate and rhythm of the heart and is therefore referred to as the heart's natural 'pacemaker'.

The electrical impulse fired from the SA node spreads throughout the atria, causing them to contract and squeeze blood into the ventricles. The electrical impulse then reaches the atrioventricular node (AV node), which acts as a gateway, slowing and regulating the impulses traveling between the atria and the ventricles. As the impulse travels down the pathways into the ventricles the heart contracts and pumps blood around the body. The cycle then begins all over again.

The heart and normal conduction



The normal adult heart beats in a regular pattern 60-100 times a minute; this is called sinus rhythm.

What are arrhythmias?

Arrhythmias are disorders of the heart's electrical system whereby there is a change in the regular beat of your heart. Sometimes if the conduction pathway is damaged or becomes blocked, or if an extra pathway exists, the heart's rhythm changes. The heart may beat too quickly (tachycardia), too slowly (bradycardia), or irregularly which may affect the heart's ability to effectively pump blood around the body. These abnormal heart rhythms are known as arrhythmias. Arrhythmias can occur in the atria or the ventricles. Arrhythmias may occur at any age, and are most often a nuisance rather than a serious problem.

What happens in the heart to cause an arrhythmia?

Any interruption in the heart's electrical system can cause an arrhythmia. For example, an irregular heartbeat may begin with an abnormal impulse in a part of the heart other than the normal pacemaker (the SA node); or the SA node may develop an abnormal rate or rhythm.

What can trigger an arrhythmia?

Common causes of arrhythmias include electrical variations that people are born with, which may only become a problem in adult life. Triggers include stress, caffeine, tobacco, alcohol, diet pills, and cough or cold medicines, but there is usually an underlying physical reason for it.

If your heart tissue is damaged as a result of acquired heart disease such as myocardial infarction (heart attack) or congenital heart disease you may also be at risk of developing arrhythmias. In rare cases, it may be that doctors cannot identify a cause of the arrhythmia.

How are arrhythmias treated?

The results of the tests you have had will determine the type and seriousness of your arrhythmia, and your doctor will then discuss with you the treatment options available. You and your doctor will then decide which one is right for you. Remember, many patients with arrhythmias require no further treatment.

The most important aspect of any initial evaluation is to determine the significance of the arrhythmia and the need for any type of intervention. If your arrhythmia requires intervention, your doctor may prescribe medication.

What do the drugs do?

Just as there are many different antibiotics to treat different infections, there are a number of different drugs to treat arrhythmias. These drugs tend to be grouped into classes, according to how they act on your heart, but drugs within the same class may affect different people in different ways.

All of these drugs, however, are prescribed with two main objectives in mind:

1. To suppress your arrhythmia, maintain a normal heart rhythm and hence minimize your symptoms.
2. To prevent the development of prolonged or serious rhythm disturbances that might result in collapse, stroke or death.

As a general rule, the most serious (life-threatening) arrhythmias are treated with an implantable device (such as an ICD) or ablation but some patients may need to take medication in addition.

What can I expect?

Before commencing a drug (or drugs), your doctor should explain how many tablets you need to take and any likely or possible side effects that you might experience. Almost all drugs have some side effects, and these side effects vary from patient to patient, but as a general rule the more potent a drug the more likely it is to produce some side effects. Drugs to control the heart rhythm are usually quite potent, so are likely to have some side effects.

As a result, the treatment you are prescribed is very often a compromise between the risks and symptoms associated with your arrhythmia and the side effects of your treatment. 'Successful' treatment may mean achieving a situation where you can live with occasional mild arrhythmias in order to avoid constant, unpleasant side effects.

Some of these side effects only occur when starting the drug, so your doctor may start at a low dose and build up gradually to get the desired response.

This does not mean that you should suffer in silence however! If you have side effects that you feel are not tolerable, you should report them to your doctor as they may be able to offer another drug that suits you better.

When you receive your drug(s), you will find a leaflet enclosed that details all possible side effects of the prescribed medication. It is important to realize that most people get few or no side effects, so don't be put off taking your tablets by reading the leaflet!

Equally important is that you should not stop taking the tablets suddenly without contacting your doctor as this may result in a 'rebound' worsening of your arrhythmia.

Occasionally your GP/doctor may give you advice about making small adjustments in your dosage according to your symptoms or side effects. Do not vary outside any agreed variation as this may result in severe side effects or loss of benefit from the drug.

Drug treatment options

Amiodarone

Amiodarone is used to help keep the heart in its normal (sinus) rhythm. It is also used when the heart has changed its rhythm (arrhythmia) to help it return to normal rhythm. Amiodarone has a low risk of proarrhythmia (a new or more frequent occurrence of pre-existing arrhythmias) and is commonly used in patients with structural heart disease.

Side effects: Although generally well tolerated amiodarone does have side effects that can affect many different parts of our body.

While taking amiodarone you may become more sensitive to the harmful effects of sunlight. Using sunblock and hats appears to prevent this side effect. As amiodarone remains in the body for a long time it may be necessary to continue using sunblock for a few months after stopping amiodarone.

Thyroid gland: The thyroid gland produces a hormone which controls the body's metabolism. Amiodarone can affect this gland making it both over active (this occurs in about 2% and 6% of people taking amiodarone) or under active (this occurs in about six percent of people taking amiodarone). Your doctor will take regular blood tests to check if either of these has developed. If you experience symptoms of extreme tiredness or restlessness you should contact your GP. The doctor may wish for you to have a blood test if this has not been performed. Both an overactive and underactive thyroid can easily be treated with medicines.

Eyes: Small deposits can form in the cornea of the eye (the clear surface that covers the pupil, iris, and white of the eye). These deposits are not harmful. However, you may notice the effect of these eye deposits if looking at bright lights at night e.g. when driving a car. One in ten people taking amiodarone, will experience a bluish halo around their vision. Again, this is not harmful. You should check with your doctor if you need to inform the DMV if these deposits cause visual impairment.

Lungs: Amiodarone can cause problems with thickening (fibrosis) of the structures of the lungs. If you feel you have problems with shortness of breath then you should arrange to see your GP straight away.

Liver: On rare occasions amiodarone causes problems with the function of the liver. Your doctor will check for any effect on the liver when performing routine blood tests every six months.

Monitoring: Amiodarone is a very useful medication and will only have been commenced in your clinical best interest. The effects listed above, although not universal, do mean that monitoring is important.

Whilst taking amiodarone, your doctor will screen for thyroid, liver and lung side effects at least annually with blood tests and a CXR.

Questions to consider

1. Is there another alternative treatment (drug or otherwise)?
2. What advice can be given to minimize side effects (for example, avoiding strong sunlight or using potent sunblock as this drug makes the skin more sensitive to burning, especially in fair-skinned patients)?
3. What arrangements will be made to check your thyroid, liver and lung function before, and during the treatment?
4. How will the initial (loading) dose be given? (Your body will require an initial loading dose of the drug followed by a regular smaller dose at a constant interval e.g. once daily before it takes full effect).
5. Will it influence any other drugs I may be taking? (It can particularly upset warfarin control).

Do remember, however, that this drug can be a life-saver when used carefully and correctly and so, as with other antiarrhythmic drugs, should not be stopped or the dosage changed without consulting your GP/doctor.

Beta Blockers

Our heartbeat is regulated by special cells that conduct electrical impulses. An irregular heartbeat can be caused by these cells conducting electrical impulses too quickly. Beta blockers reduce the over activity in these cells and so helps the heart to beat more regularly and slowly. This protects the heart from the effects of adrenaline, slowing down the activity of the heart muscle which also reduces blood pressure.

Common examples of beta blockers include atenolol and bisoprolol. Both atenolol and bisoprolol are used to treat hypertension (high blood pressure), angina and in some cases heart failure, due to the protective effects they have on the heart from adrenaline stimulation.

Side effects: As with all medications, there are possible side effects, however these usually improve as you adjust to the new medication. Although not everyone experiences side effects, those known that can occur are:

Atenolol:
- Nausea, blurred vision, vomiting, cold hands or toes, lightheadedness, shortness of breath, fatigue and sexual problems.

Bisoprolol:
- Dizziness/lightheadedness or feeling faint, sickness or nausea, diarrhea, tiredness, hypotension (low blood pressure) or bradycardia (slow heart beat).

Beta blockers may not always be safe for patients with asthma. Patients with asthma should highlight this to their doctor if they are to be prescribed beta blockers.

If you experience any of these side effects, please speak with your doctor or pharmacist.

Considerations:

Family planning and pregnancy

- Ensure that your doctor or pharmacist is aware that you are pregnant, trying for a baby or breast feeding.

Other drugs

- Ensure that your doctor or pharmacist is aware of all the other medications you take before commencing treatment. Beta blockers can interact with other medications causing alterations in the way that each drug works.

Dronedarone

Dronedarone is a drug that is similar to amiodarone in structure but has modifications to make its metabolism more clinically useful and reduce the chance of thyroid problems. Its main mechanism is to dampen atrial excitability (the ability of the cell to respond to an electrical impulse). It has been shown to reduce atrial fibrillation (AFib)-related hospital admissions in a large, randomized clinical trial. Dronedarone should be initiated and monitored by an appropriate hospital consultant or specialist nurse practitioner.

Contraindications: An increased incidence of heart failure has been seen with exposure to this drug, therefore dronedarone should not be prescribed in patients with heart failure or impaired heart function and monitoring should be carried out in all those using it. Dronedarone should also be avoided in patients with significant liver disorders.

Guidance on monitoring has been issued by the Food and Drug Administration (FDA). Patients with heart block, or sick sinus syndrome (unless used in conjunction with a functioning pacemaker), or corrected QT interval >500ms should not be given dronedarone.

Side effects: Dronedarone is generally well tolerated but common side effects are diarrhea, abdominal discomfort, nausea and vomiting.

There is an increased incidence of skin rash and bradycardia.

Most side effects are resolved within the first two weeks after drug commencement but in a proportion of patients, dronedarone may need to be discontinued because of intolerance.

Flecainide

Flecainide slows conduction in cardiac cells, decreasing their excitability; both preventing and in some circumstances terminating AFib. It also slows conduction in the accessory pathways responsible for Wolff -Parkinson-White (WPW) syndrome that can be associated with AFib (see Arrhythmia Alliance factsheet Wolff-Parkinson-White Syndrome for more information). Flecainide is especially useful in patients with paroxysmal AFib without structural or coronary heart disease. In such cases it must be used in conjunction with an agent such as a beta blocker or calcium channel blocker (verapamil or diltiazem), that slow the AV node to protect against rapid conduction to the ventricle.

Flecainide is metabolized in the liver with a half-life of around 14 hours so it is usually administered twice daily. In some patients with heart disease and in those with poor kidney function it can accumulate so dose reductions may be needed. Flecainide may be used in pregnancy following appropriate discussions and after consideration of other approaches.

Contraindications: Flecainide has a variable half-life and often causes EKG changes. The British National Formulary (BNF) recommends that flecainide is only given on the advice of a hospital consultant. Additionally, in patients with renal failure, plasma levels also have to be monitored regularly. Flecainide is contraindicated in patients with sinus node disease, atrioventricular block or bradycardia (without pacemaker support) and it should also be used with caution in those who have received pacemakers.

Side effects: Adverse side effects are usually temporary and can include: nausea, blurred vision, dizziness, constipation, diarrhea and headaches. Occasionally flecainide may cause shortness of breath, skin irritation and chest pains. If you are concerned that flecainide is causing any problems, it is important to seek medical advice promptly.

Sotalol

Sotalol is a beta blocker and as such is probably effective because it counteracts the arrhythmogenic effect of adrenaline and similar influences that may trigger attacks of arrhythmias including AFib. Sotalol has other actions to make the atrial cells less excitable through blocking heart potassium channels, but only at high doses between 80mg - 120mg, twice per day, however side effects are common. This second action is beneficial in the atria but may have adverse effects on the ventricle, so the dose of sotalol should be increased with great caution and with periodic EKG monitoring.

Cautions: Sotalol, by prolonging the recovery phase of the cardiac action potential, can predispose to ventricular arrhythmias (torsade de pointes) which can be risky, and may be life-threatening if there is a situation with low potassium and low magnesium levels, as with diarrhea and vomiting. To minimize the likelihood of this problem if there is evidence of renal impairment, the dose needs review and reduction.

Side effects: The main side effects from beta blockers in general are due to slowing of the heart and depression of the contraction of the heart. Accordingly an unduly slow pulse (bradycardia) or symptoms of heart failure can result in other effects including fatigue, sleep disturbance, shortness of breath, sexual dysfunction and depression.

Interactions: Associated intravenous administration of a calcium channel blocker that affects conduction (verapamil, diltiazem) increases the risk of bradycardia and should in general be avoided. If you are asthmatic, this should be highlighted to your prescribing doctor.

Verapamil

Verapamil is a calcium channel blocking drug that is used to slow the heart rate. Verapamil works in treating arrhythmias by stopping calcium entering the cells of the heart, slowing abnormally fast heart rates. Reduced amounts of calcium entering the muscle cells of the heart also relax the arteries and improve blood flow which lowers blood pressure. Due to this effect, verapamil is used to treat angina and hypertension (high blood pressure).

Side effects: As with all medication, there are possible side effects. Not everyone will have side effects, but when taking this medication you may experience: constipation, dizziness, headaches, feeling nauseous or being sick, and swollen ankles.

If any of these symptoms become problematic to you, it is important to see your doctor.

Considerations: It is advised that you **do not** drink grapefruit juice whilst taking verapamil as this can increase the effect of the drug and you are more likely to experience side effects. Verapamil should not be used with beta blockers. Patients should have regular blood pressure and heart rate checks whilst on this medication.

In all matters regarding medication, your doctor will advise you on what is right for you.

There are other drugs that belong to some of the same classes as those outlined already. In the case of beta-blockers this includes metoprolol, nebivolol, and carvedilol. For flecainide other drugs that belong to the same class include propafenone and disopyramide. Diltiazem is another calcium channel blocker, similar to verapamil. The choice of which medication to use will be determined by the team treating the patient, and based on individual patient characteristics.

Frequently asked questions (FAQs)

Can I take an antiarrhythmic drug if I get pregnant / wish to breast feed?

Like most drugs, antiarrhythmic drugs should be used with caution during pregnancy or breast feeding. Although some drugs are quite safe, others should be avoided as they can have an adverse effect on a baby's development.

If you are planning a pregnancy, you should mention this to your cardiologist or arrhythmia nurse. They will be able to advise you what is the safest option. Your pharmacist might also be able to give helpful advice. If you have an unplanned pregnancy, it is important to seek medical advice straight away as there may be a safer alternative drug for you to take.

What about any other medication?

Because arrhythmias often (but by no means always) occur in association with other heart conditions, you may well be on a number of drugs. Inform your doctor of all medication that you take before starting a new one.

These drugs are necessary and contribute to controlling your arrhythmia by treating the underlying heart problem, so must be continued. This may mean that you are taking a complicated 'cocktail' of drugs and it can be hard to remember which tablets to take and when. Consider investing in a tablet box which sets out all the tablets you need for the day or week and helps you to take them correctly and on time.

Please remember to always take your prescription or the original packets/boxes for ALL your tablets whenever you visit a doctor or nurse. "I take three of the pink ones a day" is not much help when there are hundreds of pink tablets that contain different drugs! This approach helps to reduce mistakes in prescribing and helps when doctors and nurses need to communicate about your treatment.

It is also worth checking your tablets every time you have a new prescription – pharmacists occasionally make mistakes and sometimes your tablets may look different because they have come from a different manufacturer (even though the drug is the same!).

What should I do if I feel really ill with my tablets?

Contact your doctor or the clinic nurse BEFORE stopping any medication, as sudden cessation of treatment can sometimes result in an unpleasant return of your arrhythmia, perhaps worse than before treatment.

Your doctor will either see you quickly or give advice about what to do. If you feel very unwell and are unable to contact your GP/cardiologist, you should consider attending your local Emergency Room, taking all of your tablets with you.

Some drugs used for arrhythmias stay in the body for quite a long time after stopping them, so any side effects may take a while to diminish or disappear. Amiodarone (Cordarone X) is the most common antiarrhythmic drug that is associated with this problem; it takes many weeks to reach stable levels in the body and may take at least three months to be removed from your body once stopped. This means, of course, that changes in dose will take some time to take effect as well as side effects continuing for some time after stopping the drug. Most other drugs are not as persistent as this, but it may take several days for a change in dose to have effect.

**IF IN DOUBT, CONTACT YOUR GP,
CARDIOLOGIST OR ARRHYTHMIA NURSE.**

If you have not been referred to a cardiologist specializing in heart rhythm disorders, it is reasonable to request this.

How long will I take these tablets?

Unlike antibiotics or some other drugs, this is not a 'course' of drugs as the treatment is intended to suppress, rather than cure, your arrhythmia. As such, you should expect to continue the tablets indefinitely unless your doctor changes them or recommends another form of treatment.

Remember that new arrhythmia treatments are being developed all the time, so there may be other options in the future.

What happens if my tablets do not work?

Treatment of arrhythmias has improved enormously in the last decade, with new drugs and other treatments becoming available.

If the first drug does not work or results in intolerable side effects, there is likely to be another one available. It may be that your doctor will need to try several drugs before finding the right one for you. This is not trial and error – they will know the right type of drug to use, but predicting which one gives you the least side effects whilst controlling your arrhythmias is rarely possible with any individual patient.

When all suitable drugs have been tried or if your rhythm is considered to be likely to result in you coming to harm, other treatments will be discussed. These include ablation (destroying a very small area inside the heart that is causing the arrhythmia) or implanting a device such as an ICD.

Because these are more specialized treatments, it may be necessary for you to be referred to another specialist cardiologist at a larger hospital. Your cardiologist will discuss this with you if this situation arises.

For further information and advice please contact us by emailing: info-us@heartrhythmalliance.org.

Notes

Notes

This booklet has been written to support those diagnosed with an arrhythmia and their carers, who struggle to find information on this condition.
Without donations and fundraising, we would not be able to provide support through our award-winning resources and helpline.

Please donate to support our vital work at
www.heartrhythmalliance.org/aa/us/get-involved/donate

Arrhythmia Alliance
www.heartrhythmalliance.org

Working together to improve the diagnosis, treatment and quality of life for all those affected by arrhythmias

Arrhythmia Alliance

info-us@heartrhythmalliance.org

www.heartrhythmalliance.org

Registered Non-Profit 501(c)(3)

Published April 2025
Reviewed November 2025

"A great guide that I can refer to regarding my medication"

Rose

To view our patient resources, scan the QR code below:

Please remember that this publication provides general guidelines only. Individuals should always discuss their condition with a healthcare professional. If you would like further information or would like to provide feedback, please contact Arrhythmia Alliance.

Acknowledgments: Arrhythmia Alliance would like to thank all those who helped in the development and review of this publication. Particular thanks are given to Professor Hugh Calkins and Francesca Calahan.

If you would like further information or would like to provide feedback please contact Arrhythmia Alliance.