

# ATRIAL FIBRILLATION:

## What You Need To Know

Article contributed by Dr Reginald Liew

### What is Atrial Fibrillation (AF)?

Atrial Fibrillation (AF) is the commonest heart rhythm disorder and affects millions of people around the world. The condition increases with age - it is very unusual in people below the age of 30 but affects as many as 1 in 20 (i.e. 5%) people over the age of 65.

The heart beat in normal people is controlled by a small area of specialised heart tissue in the upper right chamber (right atrium), called the sino-atrial (SA) node (Figure 1). The electrical activity generated from the SA node spreads through specialised conducting tissue to activate the rest of the heart muscle, resulting in coordinated contraction of the heart and the pumping out of blood to the rest of the body by the ventricles. In AF, the SA node loses control of the heart and a chaotic, irregular rhythm develops instead. Consequently, the atria do not squeeze blood out into the ventricles - this both decreases the efficiency of the heart and increases the risk of blood clots forming in the atria.

### What are the symptoms of AF?

Most people with AF will experience some symptoms (shown in Table 1), although a small proportion of patients may have no symptoms and the AF may be picked up by the doctor during a medical check-up.

AF can be present all the time (persistent or permanent AF) or may be intermittent (known as paroxysmal AF). Patients with both types of AF may experience the symptoms described above. In addition, patients with paroxysmal AF are often very aware of the moments when their heart rhythm abruptly changes to AF. These sudden and unpredictable changes can be both unpleasant and distressing to the patient as well as lead to the other symptoms of AF during the episodes.

Some patients may notice that they are in AF, because they cannot do as much as they could when they were in a normal rhythm.

Table 1. Symptoms of AF

- Palpitations (abnormal awareness of one's heartbeat)
- Breathlessness
- Tiredness
- Dizzy spells or fainting
- Chest pain
- Symptoms of stroke (e.g. weakness of part of the body or slurred speech).

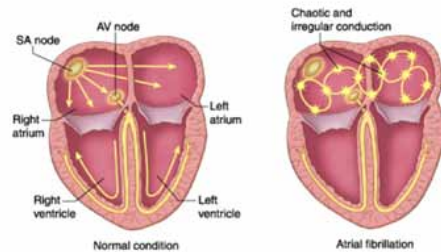


Figure 1

### What causes AF?

AF can result from a variety of causes and has a strong association with other cardiovascular conditions such as high blood pressure, heart failure, heart valve diseases and coronary artery disease. AF is also associated with other conditions outside the heart, such as excessive alcohol intake and an overactive thyroid gland. In a minority of individuals, there is no obvious cause for AF and their hearts otherwise appear to be normal - this type of AF is called "lone AF".

### How is AF diagnosed?

AF is usually first picked up when the doctor feels that you do not have a regular pulse and then performs an ECG or when you experience symptoms related to AF and then have an ECG done to document the heart rhythm. If your AF comes and goes, then longer term heart monitoring using a 24-hour Holter monitor or cardiac event recorder (which can monitor the heart rhythm for 1-2 weeks) may be required to confirm that you have AF.

### What complications can happen with AF?

**1. Risk of stroke:** AF increases the risk of developing a blood clot inside the chambers of your heart. If the blood clot breaks off and goes to the brain, it could cause a stroke. To reduce this risk, your doctor may start you on blood-thinning medication, such as aspirin, warfarin or newer blood-thinning agents. Your risk of developing a stroke with AF is related to several factors, including your age, overall health of your heart and other factors such as whether you also have high blood pressure or diabetes. Your doctor can assess your risk of a stroke and decide on the most appropriate blood-thinning medication.

**2. Risk of weakened heart muscle:** Sometimes, AF can make the heart muscle less efficient at pumping blood around your body, resulting in you feeling weak and tired. Also, if the heart rate is not well-controlled, AF can lead to a weak heart muscle and heart failure in some people.

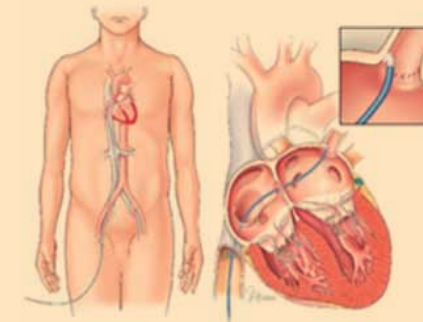
### How is AF treated?

The treatment of AF is complicated and depends on several factors, such as how affected you are by the condition, your age and whether you have any other heart or medical conditions. One of the main decisions that needs to be taken is whether to try to restore or maintain normal sinus rhythm (a "rhythm control" strategy) or allow the rhythm to remain in AF, but control the overall heart rate carefully (a "rate control" strategy). The exact treatment and choice of medication will depend on which treatment strategy your doctor and you decide on. The treatment options available are listed in Table 2.

Table 2. Treatments available for AF

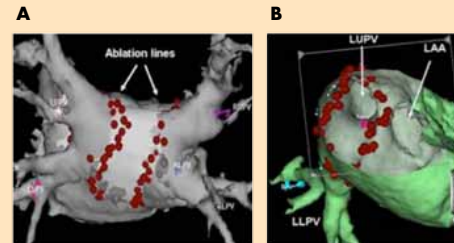
- **Medication**
  - To maintain normal sinus rhythm (rhythm control)
  - To control the heart rate in AF (rate control)
- **DC cardioversion**
  - To restore sinus rhythm
- **Catheter ablation**
  - To maintain/restore sinus rhythm and reduce recurrence
- **Permanent pacemaker insertion**
  - To prevent slow heart rates and dizziness/blackouts
- **AV node ablation and pacemaker insertion**
  - A "last-resort" for treating AF, if patient remains very symptomatic despite other treatments

## CATHETER ABLATION OF AF



### What is catheter ablation?

Catheter ablation is a form of "key-hole" surgery that involves the passing of thin flexible wires (called EP catheters) through blood vessels in the leg to the heart. It is a complex procedure that can take 3-4 hours to perform in the cardiac catheterisation laboratory using specialised equipment (called a 3D mapping system) - this equipment allows the operator to combine electrical information from the inside of the heart with the anatomy of the heart. The technique involves delivering radiofrequency energy through an ablation catheter to disrupt the electrical circuits causing the AF - this usually takes the form of performing two large "ablation circles" around the pulmonary veins that drain blood from the lungs to the left atrium (since the abnormal heart rhythm originates from the pulmonary veins in most cases of paroxysmal AF). In more advanced types of AF, additional ablation lesions and lines need to be delivered, which can prolong the procedure time. AF ablation is usually performed using light sedation and analgesia with close monitoring by cardiac laboratory staff.



### How long will I be hospitalised?

You will need to be in hospital for 2-3 days. Most patients are discharged on the third day and are fully mobile at that stage, although you may need about a week off work to fully recover. Your doctor will usually arrange for you to have a CT scan of your heart and transoesophageal echocardiogram (ultrasound scan to look at the heart from "behind") prior to the procedure. You will also need to take blood thinning medication (warfarin or a newer blood thinner) for about 3 months after the ablation procedure.

### What are the results of catheter ablation?

The results of catheter ablation have improved greatly over the past several years, and success rates of up to 80-90% (i.e. no further AF, even after medication is stopped) can be achieved in some patients with paroxysmal AF and normal heart structure. The success rates can be lower in patients with more advanced forms of AF (persistent AF) or if the heart is enlarged. Some patients require a repeat procedure if the AF returns or if they develop a different heart rhythm problem. The success rate of a repeat procedure is often higher than the initial procedure, especially if only limited additional lesions are required.

### What are the benefits and risks of AF ablation?

**1. Benefits:** Clinical studies have shown that catheter ablation is more effective at restoring and maintaining a normal heart rhythm, as compared with medication. The procedure can therefore reduce the need for lifelong medication and the side-effects associated with medication. There is also evidence that catheter ablation in some patients with AF and heart failure, can improve the heart function if successful.

**2. Risks:** Procedural related complications can occur in about 2-4% of patients. The most common complication is pericardial effusion (blood leaking out of the heart) which may need draining with a needle or operation. Other complications include bruising in the legs, chest discomfort, heart attack, stroke, narrowing of the pulmonary veins (which drain blood from the lungs to the heart) and a very rare complication called atrio-oesophageal fistula (where a hole forms between the atrium and the oesophagus or food pipe). The mortality rate from an AF ablation procedure is extremely low.

In conclusion, AF is a common and complex heart rhythm disorder that is associated with serious problems such as stroke and heart failure. The condition should ideally be assessed by a cardiologist or heart rhythm specialist to decide on the most appropriate treatment.

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# 心房颤动：

## 您需要知道的信息

柳家骏医生的文献

### 什么是心房颤动？

心房颤动是最常见的心脏节律异常，世界各地有数以百万计的人们患上心房颤动。心房颤动发生率会随着年龄增加而逐渐增高-30岁以下的人比较少患上心房颤动，每20名65岁以上的人就有1(即5%)人患上心房颤动。

正常人的跳动是由心脏右上方(右心房)的心脏组织的一个小区域控制，称为窦房结[图1]。从窦房结产生的电信号，通过心脏特有的传导组织激活其余部分的心脏肌肉，使心脏有规律地收缩，将心室的血液泵送到身体的其它部位。当发生心房颤动时，窦房结无法控制心脏的跳动，心跳的节奏变得混乱而不规律。心房不能将血液泵入心室 - 这不仅降低心脏效率，同时也增加心房形成血液凝块的风险。

### 心房颤动的症状有哪些？

大多数心房颤动的患者都会有一些症状(如表1所示)，但部分的患者可能没有任何症状，他们是在身体检查时被医生发现患上心房颤动。

心房颤动可以持续存在(持续性或长期性房颤)，或可能是间歇性的(称为阵发性房颤)。这两种类型的房颤患者都会出现上述症状。此外，当阵发性房颤患者的心脏节律突然变化，他们往往很清楚心房颤动发生的时刻。这些突发性和不可预知的变化会同时令患者难受和痛心，也会在发作期间引起其它的房颤症状。

有些患者可能会注意到自己发生心房颤动会比他们心脏节律正常时感觉更疲倦及虚弱。

表1 心房颤动的症状

- 心悸(心跳异常)
- 呼吸短促
- 疲劳
- 头晕或昏厥
- 胸部疼痛
- 中风的症状(如身体某个部分虚弱或口齿不清)

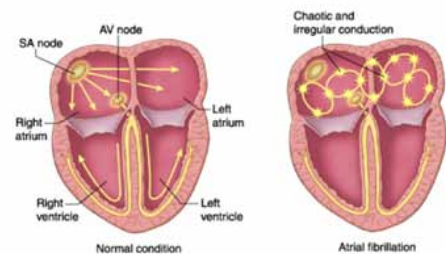


图1

### 心房颤动是由什么原因引起的？

心房颤动是由各种原因引起的，与其它心血管疾病有很大的关系，如高血压、心脏衰竭、心脏瓣膜疾病和冠状动脉疾病。心房颤动也与心脏以外的其它状况有关，如过度摄入酒精与甲状腺功能亢进。有一小部分的心房颤动患者没有明显的原因，他们的心脏看似正常 - 这种类型的心房颤动称为“孤立性房颤”。

### 如何诊断心房颤动？

心房颤动通常在医生发现患者的脉搏跳动不规律后首次被发现，接着进行心电图或当患者出现心房颤动的相关症状，做心电图来记录心脏节律。如果患者的心房颤动来得快也去得快，则可能需要使用24小时持续心电图检测或心脏事件记录(可监测心脏节律1-2个星期)进行长时间的监测，以确认患者是否有心房颤动。

### 心房颤动并发症有哪些？

1. **中风的风险：**心房颤动会增加心腔内部形成血块的风险。如果血块脱落，随血液进入大脑，可导致中风。为了减少这种风险，医生会给患者开抗凝血药，如阿司匹林、华法林或较新的抗凝血剂。心房颤动引发中风的风险涉及到几个因素，包括患者的年龄、整体心脏健康和其它因素，如患者是否也有高血压或糖尿病。医生将评估患者中风的危险，并决定最合适的抗凝血药。

2. **心脏肌肉疲弱的风险：**心房颤动有时会使心脏肌肉不能正常地向身体各部分泵血，导致患者感觉虚弱和疲劳。此外，如果没有控制好心率，心房颤动可导致一些患者心肌衰弱和心脏衰竭。

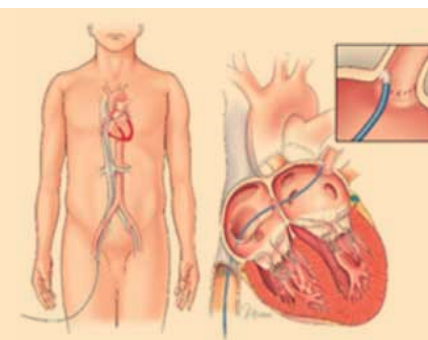
### 如何治疗心房颤动？

心房颤动的治疗很复杂，这取决于几个因素，比如患者的状况、年龄以及是否有任何其它心脏或医疗状况。医生将采取的主要决策之一是尝试恢复或维持正常的窦性心律(“节律控制”策略)或允许保持房颤的节律，但小心控制整体心脏速率(“速率控制”策略)。确切的治疗方法和用药选择将根据医生和患者决定的治疗策略而定。表2中列出心房颤动的各种治疗方法。

表2 心房颤动的治疗方法

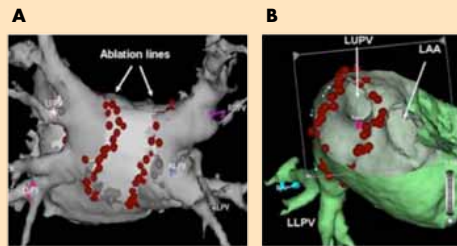
- 药物
  - 维持正常的窦性心律(节律控制)
  - 控制房颤的心脏速率(速率控制)
- 心脏电复律
  - 恢复窦性心律
- 导管消融术
  - 保持/恢复窦性心律，减少复发
- 永久性起搏器植入
  - 防止心脏速率慢，头晕/晕厥
- 房室结消融术和起搏器植入
  - 如果病人在经过其它治疗后仍有房颤的症状，这将是治疗房颤的“最后手段”。

### 房颤导管消融术



### 什么是导管消融术？

导管消融术是一种“微创”手术，采用软导管(称为EP导管)通过大腿根部的血管送入心脏。这是一个复杂的治疗过程，需要在心导管实验室用专门的设备(称为三维定位系统)进行3-4小时-该设备可让操作者将心脏内部的心电信息与心脏结构结合起来。这项技术是通过消融导管提供射频能量，以干扰导致心房颤动的电路-这通常需要在血液流回左心房的肺静脉周围执行两个大的“消融圈”(在大多数情况下，阵发性房颤的异常心脏节律起源于肺静脉)。更严重的心房颤动类型需要额外的消融病变和导管，因而将延长手术时间。心房颤动消融通常是由心脏实验室工作人员对患者实施轻度镇静和镇痛来进行密切监测。



### 患者需要住院多久？

患者需要住院2-3天。大多数患者在第三天出院，尽管患者可能需要一个星期左右完全康复，但他们在这个阶段完全可以活动。医生通常会会在手术之前安排患者进行心脏CT扫描和经食管超声心动图(从心脏的“后方”进行心脏超声波扫描)。患者在导管消融术后约3个月仍需要服用抗凝血药(华法林或新的抗凝血剂)。

### 房颤导管消融术的效果如何？

房颤导管消融术的效果在过去几年中已大大提高。一些阵发性房颤和心脏结构正常的患者的成功率高达80-90%(即使停止服药后，心房颤动也没有再发作)。更严重的心房颤动(持续性房颤)患者或如果心脏扩大，成功率就比较低。如果患者的心房颤动再次发作，或者出现不同的心脏节律问题，他们需要重复进行手术。重复手术的成功率往往高于最初的手术，特别是如果只需要实施于少部分的额外病变。

### 房颤导管消融术有什么好处和风险？

1. **好处：**临床研究表明房颤导管消融术在恢复和维持正常的心脏节律方面比药物治疗更有效。因此，进行这项手术后不需要终身服药，并可以减少药物相关的副作用。此外，也有证据显示某些心房颤动和心脏衰竭患者在成功进行房颤导管消融术后，可以提高心脏功能。

2. **风险：**大约2-4%的患者会发生手术相关的并发症。最常见的并发症是心包渗漏(心脏漏出的血液)，需要采用心包穿刺或手术。其它并发症包括大腿淤青、胸闷、心脏病发作、中风、肺静脉(血液从肺部流回心脏)狭窄，还有一个非常罕见的并发症，称为房室食管瘘(心房和食道或食管之间形成瘘口)。房颤导管消融术的死亡率非常低。

总之，心房颤动是一种常见和复杂的心脏节律紊乱，与中风和心脏衰竭等严重问题相关。这种状况应该由心脏病专家或心脏节律专家进行评估，以决定最适当的治疗方法。

柳家骏医生是新加坡心脏基金会研究委员会成员。他也是新加坡哈雷街心脏专科诊所的高级心脏病专家顾问。欲了解更多信息，请上网[www.theharleystreetclinicsingapore.com](http://www.theharleystreetclinicsingapore.com)