

## Atrial Fibrillation and the Need for Antithrombotic Therapy in Chronic Alcoholics

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Atrial fibrillation (AF) is the most common sustained arrhythmia seen in clinical practice, affecting more than 6 million people in Europe, up to 5.1 million people in the US and more than 800,000 people in Japan [1]. Atrial fibrillation is associated with a major risk of stroke, caused by a thrombus that forms within the left atrium and embolises to block a cerebral artery. The degree of stroke risk and the need for anticoagulant therapy to lower this risk varies among patients with AF [2, 3].

Atrial Fibrillation (AF) is the most common cardiac arrhythmia (abnormal heart rhythm). Its name comes from the fibrillating (i.e., quivering) of the heart muscles of the atria, instead of a coordinated contraction. The result is an irregular heartbeat, which may occur in episodes lasting from minutes to weeks, or it could occur all the time for years. Atrial fibrillation alone is not in itself generally life-threatening, but it may result in palpitations, fainting, chest pain, or congestive heart failure [4, 5].

### **AF — the most common arrhythmia**

AF, the most common type of sustained cardiac arrhythmia is primarily a problem of the elderly[6]. The prevalence is less than 1% in those under 60 and almost 10% in those over 80.

### **AF is often classified based on the temporal pattern of presentation:**

- Recurrent AF: two or more episodes of AF
- Paroxysmal AF: episodes end spontaneously within seven day
- Persistent AF: pharmacologic or electrical cardioversion is required to terminate the arrhythmia
- Permanent AF: sustained AF despite treatment to end the arrhythmia or when cardioversion is inappropriate

Paroxysmal and persistent AF are referred to as recurrent AF based on the pattern of the arrhythmia[7,8].

### **AF — rhythm control vs rate control**

The objectives of treating AF are to relieve symptoms (when present) and to optimise cardiac function. This can be accomplished with either a rhythm-control or a rate-control approach[9]. Rhythm control involves efforts — electrical cardioversion or drug therapy, or both — to restore and maintain normal sinus rhythm. In addition, interventional approaches designed to ablate the source of the abnormal rhythm — known as catheter ablation procedures — have proven successful in some patients with paroxysmal AF[9,10].

Rate control involves using medications to maintain a ventricular rate under 100 beats per minute without attempting to terminate the arrhythmia[11]. Generally, studies have shown that there is no survival advantage with rhythm control as opposed to rate control.

### **AF — the role of antithrombotic therapy**

Regardless of which treatment approach is pursued, antithrombotic therapy is essential, according to AF guidelines. This is because cardioembolic stroke is one of the main complications of AF[12]. Cardioembolic stroke (or thromboembolic stroke) occurs when stagnant blood in the fibrillating atrium forms a thrombus that then embolises to the cerebral circulation, blocking arterial blood flow and causing ischaemic injury[13].

The incidence of stroke in patients with nonvalvular AF (ie, AF not caused by damage to the mitral valve) is between two- and seven-fold greater than in the general population. For patients with AF caused by valvular disease, the risk of stroke increases 17-fold[14].

Atrial Fibrillation (AF) is the most common cardiac arrhythmia (abnormal heart rhythm). Its name comes from the fibrillating (i.e., quivering) of the heart muscles of the atria, instead of a coordinated contraction[15]. The result is an irregular heartbeat, which may occur in episodes lasting from minutes to weeks, or it could occur all the time for years. Atrial fibrillation alone is not in itself generally life-threatening, but it may result in palpitations, fainting, chest pain, or congestive heart failure[16].

### **Holiday Heart Syndrome**

There is no doubt that heavy alcohol intake and being drinking can lead to cardiac arrhythmias, with the "Holiday Heart Syndrome" being known for more than three decades[17]. This syndrome often includes atrial fibrillation; the syndrome is usually not associated with long-standing heart disease and the arrhythmia tends to resolve when drinking stops.

Members of The international Scientific Forum on Alcohol Research comment "This paper ... analyzing the results of 14 papers suggests that even moderate drinking can lead to this syndrome, but others find no effect for moderate alcohol intake, only for heavy drinking. One of the best studies on alcohol consumption and risk of atrial fibrillation is a Danish cohort study (the Danish Diet, Cancer and Health Study) examining the issue among 22,528 men and 25,421 women followed over 6 years. The study included a large number of cases with atrial fibrillation, detailed information on potential confounding factors, and complete follow up through nationwide population-based registries. The results included a modest increase in risk of atrial fibrillation in men drinking more than 2 drinks/day and no association between alcohol consumption and risk of atrial fibrillation in women.

There is much evidence that heavy alcohol consumption is associated with an increased incidence of atrial fibrillation, among other health risks. The pattern of consumption (speed, time frame and without food), not often addressed, affects risk too -- we know that binge drinking is associated with a greater incidence of arrhythmias, especially atrial fibrillation[18].

A weakness of this paper, and of essentially all meta-analyses, is that there were varying definitions for categories of alcohol consumption, and the highest category of alcohol intake included alcoholics and 6 or more drinks/day for some studies, while the highest category of alcohol intake was = 1-2 drinks/day in other studies[19].

The consistent message is that there is a difference between heavy and moderate use of alcohol, between binge drinking and a healthy pattern of drinking, and inherent health risk. Overall, the scientific evidence from many studies suggests that heavy drinking may increase the risk of atrial fibrillation, although whether light-to-moderate intake increases the risk seems unlikely. Previous basic scientific data of mechanisms of atrial fibrillation have suggested that alcohol has little effect on this arrhythmia[19].

It affects more than 2.6 million people in the United States alone and the numbers are growing. The real danger of AF comes when blood clots that form in the rapidly beating upper chambers limbs[20]. Even if you do not experience the telltale fast heartbeat and palpitations that signal about of AF, you are five times more likely to suffer a stroke from a blocked artery (*ischemic stroke*) than someone without the condition.

Many factors can contribute to AF and heavy alcohol use is high on the list. For some time doctors have observed a syndrome dubbed "holiday heart," in which an otherwise healthy person experiences a lone episode of AF following a weekend of binge drinking. But the issue that has continued to elude researchers is whether heavy alcohol consumption on a regular basis will lead to chronic AF down the road. Further clouding the subject are numerous studies that have shown moderate alcohol intake to be a benefit to cardiovascular health.

In attempt to clarify the issue, scientists in Japan undertook a systematic analysis of 40 years of research involving AF and alcohol use. After eliminating all but the most relevant studies, they settled on 14 that collectively assessed the drinking patterns of over 130,000 subjects in Europe and North America[21].

The researchers split the subjects into lowest and highest alcohol intake categories and compared the risk of AF between the groups. Overall, the heavy alcohol users were at 50% higher risk for AF than the light drinkers or teetotalers. Another interesting point the researchers uncovered was that AF risk rose in direct proportion to an individual's level of alcohol intake. For each additional 10 grams of alcohol a person consumed on a daily basis (roughly equivalent to one extra drink) the likelihood of having AF grew 8%. The study did not address whether the type of alcoholic beverage consumed--beer, wine, or spirits--made a difference to AF risk[22].

### **Stay Active**

"Regular exercise is important if persons have atrial fibrillation because staying fit slows down your resting heartbeat and decreases your blood pressure. High blood pressure is dangerous for someone with atrial fibrillation and can trigger an irregular heartbeat," according to David Frid, MD, Cleveland, Ohio. High blood pressure, along with heart disease, is among the common causes of atrial fibrillation.

### **Manage Blood Cholesterol**

"Keeping an eye on once cholesterol is important for everyone with heart disease, including people with atrial fibrillation," advises Dr. Frid. High cholesterol levels can lead to coronary artery disease and to stroke. If someone have atrial fibrillation, they are already up to seven times more likely to experience a stroke than someone without atrial fibrillation. Go on a Low-Sodium Diet

One way to lower your risk of stroke and help manage atrial fibrillation is to eat a heart-healthy, low-sodium diet. "An important part of a healthy diet for someone with atrial fibrillation is avoiding salt. Salt can

increase once blood pressure, which can make atrial fibrillation worse," notes Frid. Other parts of a heart-healthy diet include avoiding saturated fats, limiting unhealthy calories, and consuming plenty of fiber-rich foods.

### **Cut Out Caffeine**

Too much caffeine is bad for anyone, but caffeine can be especially dangerous for someone with an irregular heartbeat due to atrial fibrillation. "Caffeine acts as a stimulant to the heart and can trigger atrial fibrillation," says Frid. Common sources of caffeine include coffee, tea, colas, and energy drinks. Also, make sure to check the labels of over-the-counter medications to make sure they do not contain caffeine.

### **Avoid Stimulants in Cough and Cold Medicines**

Many over-the-counter cough and cold preparations contain the medications pseudoephedrine and ephedrine. "These medications may stimulate the heart in a way that is similar to caffeine, raising blood pressure and increasing heart rate. That can be dangerous if they have atrial fibrillation," warns Frid.

### **Don't Smoke**

Smoking is bad for everybody: People who smoke are at risk for lung cancer, heart attack, and chronic pulmonary disease. If one have atrial fibrillation and one smokes, those are really playing with fire. "Nicotine is another one of those stimulants that can raise blood pressure, irritate the heart muscle, increase the heart rate, and trigger an attack of atrial fibrillation," says Frid, especially in alcoholics.

### **Limit Alcohol**

Excess exposure to high dose of alcohol or binge drinking is a known cause of atrial fibrillation. Alcohol increases blood pressure and heart rate, which is dangerous if they have atrial fibrillation. "People with atrial fibrillation may quickly get into trouble if they binge on alcohol. The term 'holiday heart' has been used to describe increased risk of heart problems that occur during the holiday season," says Frid[23].

### **Get Your Flu Shot**

The flu can be riskier for someone with a weakened heart. "There is some evidence that viral diseases like the flu can spread to the heart muscle or to the tissue around the heart. These conditions, called pericarditis and myocarditis, can be especially dangerous for people with atrial fibrillation," says Frid. Flu virus can also lead to fever and dehydration, which can stress their heart and increase the risk of atrial fibrillation.

### **Keep Your Weight in Check**

Maintaining a healthy weight is one of the best ways to help manage once atrial fibrillation. "Being overweight increases their blood pressure, and that increases pressure inside once atria, where the irregular heartbeats of atrial fibrillation begin," explains Frid.

### **Lowering of Stress**

"Stress triggers the body's flight or fight response. Stress causes the secretion of hormones like adrenaline that increase heart rate and blood pressure in a way similar to caffeine," says Frid. Repeated stress can damage once heart over time and can also lead to other bad behaviors, such as smoking or drinking, that make atrial fibrillation worse. Using stress-reduction techniques and avoiding stressful situations can help once to manage atrial fibrillation and feel calmer.

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