The Connection Between Atrial Fibrillation and Potassium

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Can Low Potassium Cause AFib?

Atrial fibrillation (AF) is a heart arrhythmia that reduces the ability of the heart to pump normal levels of blood out to the rest of the body. More than 6 million people worldwide have AF, with people over the age of 65 having a higher frequency. There are different causes of AF, but some people may wonder, can low potassium cause AFib and how much of a role does diet play?

Let’s explore.

What Exactly Is AF?

AF occurs because of an abnormality in the heart’s electrical conduction pathways, which causes irregular transmission of signals to the upper chambers, called the atria. This situation leads to disrupted blood flow to the heart’s lower chambers, called the ventricles, and results in inadequate blood flow to all the other parts of your body.

Frequent Causes of AFib

Many people experience AF due to the presence of the following conditions:

- Atherosclerosis (known as coronary artery disease)
- Congestive heart failure
- Congenital heart abnormalities (present at birth)
- Excessive alcohol use
- Heart attack
- High blood pressure
- Hyperthyroidism and other types of thyroid disease
- Hypertrophic cardiomyopathy (a thickening of the interior walls of the heart)
- Infections originating from a virus
- Medications
- Pericarditis (inflammation of the thin exterior covering of the heart)
- Sleep apnea
- Some kinds of heart disease like sick sinus syndrome
- Stimulants like caffeine and tobacco
- Valvular heart disease

For specific individuals, psychological stress, quickly drinking cold drinks like ice water, or rapid consumption of frozen treats like ice cream can trigger AF. Sometimes AF happens without the presence of any other health issues, and physicians are unable to determine the cause.

Learn more about the causes of AFib.

Risk Factors for Developing AF

As with causes, the presence of risk factors can increase a person's likelihood of having an AF episode. These risk factors include:

- Advancing age
- Chronic kidney disease
- Diabetes
- Genetics
- History of a heart attack
- Some types of chronic lung disease
- Metabolic syndrome
- Obesity

A couple of recent facts published by the CDC in May of 2020 show that people with high blood pressure account for roughly 20% of the known cases of AF. The article also indicates that people with European ancestry have a higher incidence of AF than those with other genetic backgrounds. Additionally, there have been several studies published that delve into the role of the heart's potassium levels and the presence of AF.

Potassium Levels and Their Influence on AFib

Potassium is an electrolyte in your body that performs a vital role in heart function. Along with sodium and calcium, potassium participates in generating and maintaining the normal flow of electrical signals throughout the heart muscle that tells it how fast or slow to pump.

According to the American Heart Association, high potassium, called hyperkalemia, has a link to some types of heart arrhythmias. However, what is the consequence of having low potassium levels, known as hypokalemia?

Low Potassium

The International Journal of Cardiology listed a study in October 2013, stating that, "Little is known about the association of serum potassium with atrial fibrillation." The research followed a group of 4,059 individuals without AF for almost 12 years. Over that timeframe, 11.7% of the participants developed AF and those with low potassium levels had a higher risk of the onset of the condition.

The European Society of Cardiology published an article in 2008, indicating that low potassium levels increase the risk of developing cardiac arrhythmias.

Further Research

Arquivos Brasileiros de Cardiology published a study in 2015 showing an inverse correlation between low potassium levels in the bloodstream and the occurrence of acute onset AF.

The journal of the American College of Cardiology published an article in August 2004 stating that low potassium levels in the bloodstream can influence the occurrence of AF after cardiovascular surgery and that increasing amounts could decrease the risk of AF after surgery.

Research published in the Annals of Thoracic Surgery in 2016 reported that severe potassium deficiencies do increase the risk of patients for ventricular rhythms after surgery. Still, there has yet to be a well-established link between low potassium levels and AF after surgery.

Key Takeaways

So, can low potassium cause AFib? The currently available literature reveals no conclusive evidence that low potassium levels clearly cause AF for people after heart surgery or a heart attack. Two clinical trials exploring this topic, unfortunately, do not have available results.

Low potassium levels within the bloodstream and in cardiac cells could cause AF, but this assumption requires more substantial research to establish this link.

If you have AF and have below-normal potassium levels according to your lab tests, talk to your physician about possible options to correct this problem. Your physician will review your health history to pinpoint any other chronic conditions that could be the cause.

Your physician can also conduct a thorough review of your current medication regimen to determine if any of the drugs you take are causing your body to lose potassium, and if so, they can make recommendations on alternative medications to correct this problem.

Always confer with your physician before deciding to take potassium supplements, because extra potassium could be fatal if you have a chronic condition, like kidney disease.