Atrial Fibrillation and Iron

Atrial fibrillation is an irregular heart beat that involves the fluttering of the heart’s upper chambers (atria). It can lead to blood clots, stroke, and heart failure. Several million Americans have it, and it’s more common in older people. Could there be a link between atrial fibrillation and iron?

There certainly could. Consider a report from 2010: Remission of paroxysmal atrial fibrillation with iron reduction in haemophilia A. (If interested, the full paper can be accessed at Sci-Hub.)

Two male cousins, one age 49, the other 57, both with hemophilia, developed atrial fibrillation. They both refused a procedure to reduce or eliminate their arrhythmia due to concerns about bleeding. The effectiveness of drugs was wearing off.

So a course of iron reduction via phlebotomy was decided on.

Major point I want to emphasize: one of the men had a ferritin of 389 ng/ml, the other 305. The Mayo Clinic says that a normal ferritin level for men is 24 to 336 ng/ml. So, one of the men was somewhat above the normal range, the other was within it.

While it’s well known that people with hemochromatosis – pathological iron loading, in which ferritin levels sometimes reach over 1000 or more – are at higher risk of cardiac arrhythmias, these men did not have hemochromatosis. One of these men had a normal ferritin level, the other only somewhat high.

The first patient had 6 units of blood removed over 6 months time – his atrial fibrillation stopped when his ferritin was 68. Doctors brought the second patient down to a ferritin of 29. His atrial fibrillation also stopped.

The patients had periodic phlebotomy over several years time to keep ferritin at a low level.
Is it possible that iron is involved in other cases of atrial fibrillation?

Consider that many guinea pigs that are iron-loaded die of sudden cardiac death, “presumably from cardiac arrhythmias”. Granted that these animals must have had very high iron levels.

How would iron do this? In a word — or two words — oxidative stress. Iron is a reactive metal that causes oxidation. It builds up in myocardial cells of the heart and damages electrical conduction.

Some natural methods of dealing with atrial fibrillation also seem to work through reduction of oxidative stress: vitamin C, and n-acetylcysteine.

While atrial fibrillation seems to have a number of causes, and is generally poorly controlled by drugs, oxidative stress and inflammation are thought to play a role.

Conclusion

Keeping iron levels in a low normal range, or at least preventing them from rising too high, could have an impact on whether someone gets atrial fibrillation.

From the case study I discussed, it doesn’t appear that iron levels even need to be all that high to result in atrial fibrillation. Of course, other factors are involved, and not everyone with iron levels in that range gets atrial fib.

PS: See my book Dumping Iron for more.

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