Discovering an overlooked fact in atrial fibrillation: Iron deficiency

Dear Editor,

We read the article titled “Iron deficiency and hematocin deficiencies in atrial fibrillation: A new insight into comorbidities” in the current issue with great interest and curiosity. First of all, we would like to congratulate the authors on this novel study. They analyzed an unexamined topic in patients with non-valvular atrial fibrillation (AF). Despite the similar underlying inflammatory mechanisms and close relationship between heart failure (HF) and AF, previous studies were usually only related to iron deficiency (ID) in patients with HF. A review of the literature review indicated that ID has not previously been evaluated in AF patients, regardless of valvular etiology.

After reviewing the article, we would like to ask some questions about the study. First, what was the objective in defining the ferritin level cut-off points at 100 µg/L? A ferritin level of 30 µg/L and a transferrin saturation of 20% are widely accepted cut-off points for ID. Second, were patients treated with ablation in the past excluded? Patients who had undergone ablation therapy might have had a longer AF-free period, which could affect the underlying inflammatory mechanisms in ID. Finally, intravenous ferric carboxymaltose therapy has been considered quite beneficial in HF. Do the authors think that intravenous and/or enteral iron replacement could be beneficial for the symptoms and functional capacity in patients with AF, as in HF?

Adnan Kaya, M.D., Osman Kayapınar, M.D.
Department of Cardiology, Düzce University Faculty of Medicine, Düzce, Turkey
e-mail: adnankaya@ymail.com

Conflict-of-interest: None declared.

References

Authors’ reply

Dear Editor,

First, we thank the authors for their kind and important comments. International Nutritional Anemia Consultative Group indicated that at all ages a serum ferritin level of less than 10-12 µg/L is indicative of iron deficiency (ID). These values have been revised in 2011 and a level of 15 µg/L has been considered as reflective of ID. Currently, the generally accepted serum ferritin cut-off level to diagnose absolute ID is <30 µg/L. As ferritin is an acute phase reactant, and nonspecifically elevated in chronic inflammatory diseases, absolute ID is commonly diagnosed with higher cut-off ferritin values (<100 µg/L) and functional ID is diagnosed with normal serum ferritin (100–300 µg/L) and low transferrin saturation (Tsat) (<20%).

The diagnosis of ID in previous studies with heart failure, which is associated with a chronic inflammatory status, was based on this later definition. As atrial fibrillation is another cardiac disease with increased systemic and local inflammation, we used the same cut-off values for ID in our study.

Systemic inflammation may induce atrial fibrillation through several direct and indirect arrhythmogenic triggers, and development of atrial fibrillation may be considered as a consequence of long-term underlying systemic inflammatory triggers. As we aimed to examine a possible relation between systemic inflammation and ID in atrial fibrillation patients, we did not exclude those with a history for catheter ablation.
Iron deficiency and atrial fibrillation

Dear Editor,

We read the article by Keskin et al. about iron deficiency in patients with atrial fibrillation (AF) with great interest. It was reported that iron deficiency was more frequent in patients with AF than in a healthy control group and that iron deficiency and anemia were more common in the permanent AF group.[1]

The major cause of iron deficiency is blood loss; it is most often caused by excessive menstrual bleeding in women of childbearing age and bleeding of the gastrointestinal tract in the remaining population.[2] The main reason for the difference in the prevalence of iron deficiency and anemia between healthy controls and AF patients could be related to anticoagulant medication use or as a result of increased occult bleeding.

Another important point is that medications can affect the absorption and metabolism of iron. There are emerging data suggesting an association between chronic proton pump inhibitor (PPI) use and iron deficiency.[3] Patients treated with anticoagulation more often use a PPI when compared with the normal population. Therefore, we think that PPI use should be taken into account in this study. Additionally, digoxin may affect some genes related to iron metabolism and can cause iron deficiency and anemia.[4] Digoxin use could be another reason for iron deficiency in AF patients.

Finally, the duration of anticoagulation was not assessed. Patients with permanent AF may be under warfarin treatment longer than other groups. This longer duration of anticoagulation may be another reason for the difference in anemia and iron deficiency between the groups.

Metin Okşul, M.D., Yusuf Ziya Şener, M.D., Ahmet Emre Gültekin, M.D.
Department of Cardiology, Hacettepe University Faculty of Medicine, Ankara, Turkey
e-mail: moksul_73@hotmail.com

Conflict-of-interest: None declared.

References