Association Between Aplastic Anemia and Atrial Fibrillation: Is Inflammation the Only Underlying Mechanism?

To the Editor:

We read with great interest the recent article about the relationship between aplastic anemia and atrial fibrillation (AF).¹ It was reported that the incidence rate of AF was significantly higher in patients with aplastic anemia than in both the general population and a propensity score-matched control group. Underlying inflammation is suggested as the main cause of the association between AF and aplastic anemia.

Patients with aplastic anemia frequently need transfusion of blood products. Although it is predominantly reported in patients undergoing cardiac surgery; blood transfusion is related to increased incidence of new-onset AF. Blood transfusion induces inflammation and inflammatory markers such as bactericidal/permeability increasing protein levels are elevated after transfusion. Increased right atrial pressure as a consequence of volume overload, undetected myocardial damage and stimulation of inflammation are the suspected mechanisms of AF development after transfusion.^{2,3} Repeated blood transfusion causes iron overload, and excessive iron accumulation in the myocardium leads several cardiac manifestations. Iron ordinarily starts to accumulate firstly in the ventricular myocardium and the atrial myocardium is affected later than the ventricles. Arrhythmia is the usual presentation of cardiac involvement and AF is the most common arrhythmia in these patients.

Iron has proarrhythmic effects on its own besides causing cardiac dysfunction from accumulation in the myocardium.⁴ Iron chelation treatment and phlebotomy restores cardiac function and can resolve arrhythmias in patients with iron overload.⁵

In the reported study, transfusion data and ferritin levels of the patients are not assessed. Inflammation may play a role in both aplastic anemia and AF, of course, but as mentioned above recurrent transfusion episodes and related iron overload can also explain the increased incidence of AF in patients with aplastic anemia.

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