Cardiac Valve Diseases and Antiphospholipid Syndrome

Key words: anticardiolipin antibody, lupus anticoagulant, thrombosis, vegetation, stroke

Antiphospholipid syndrome (APS) has been recognized as one of the most common types of thrombophilia (1). Its main clinical features are arterial/venous thrombosis and pregnancy loss associated with placenta thrombosis. However, other heterogeneous clinical manifestations may be associated with APS, such as thrombocytopenia, haemolytic anemia, neurological impairment and pulmonary hypertension (2).

Morita et al (3) reported an interesting case presenting congestive heart failure with mitral/aortic regurgitation and positivity for antiphospholipid antibodies (aPLs).

Autoimmune endocarditis and valve disease (Libman-Sacks endocarditis) are some of the “classical” lupus features whose etiology has still been obscure (4). The possible association between endocarditis and antiphospholipid antibodies was first reported in a lupus patient with lupus anticoagulant in 1985 (5). In 1990, Khamashta et al (6) investigated valve diseases by echocardiography in 132 consecutive patients with systemic lupus erythematosus (SLE), of whom 50 had antiphospholipid antibodies. Twenty-three percent of all the patients had some valvular lesions, and interestingly those valvular diseases were strongly correlated with the presence of antiphospholipid antibodies. The prevalence of valve vegetations and mitral regurgitation was 16% and 38% in patients with aPLs, strikingly higher than 1.2% and 12% in aPLs-negative patients, respectively. In the absence of SLE, the prevalence of valvular involvement was still high (36%) in 28 patients with primary APS (7). There are many reports regarding this issue, some of them were cited by Morita et al (3). Those data suggest that the presence of aPLs represents a risk for having valvular involvement in patients with SLE and/or APS (8).

The pathogenesis of Libman-Sacks endocarditis has been hypothesized to involve fibrin thrombi on the altered valve and its organization leads to fibrosis and dysfunction (9). aPLs may play a role to mediate valvular damage by promoting thrombin formation on the endothelium (8). A number of studies have shown the interaction of aPLs on the endothelial cell activation, leading to the procoagulant state (10–12). Moreover, immunological injury, mainly mediated by immune complex, has been postulated. Ziporen et al (13) showed aCL and complement component deposition in the immunohistochemical study using anti-idiotypic antibody along the surface of the investigated valve in patients with SLE or primary APS. Pope et al (14) reported a high prevalence of low complement levels in patients with APS and valvular diseases, even though most of them were diagnosed as primary APS without any clinical features of SLE. Therefore, thrombotic tendency may not be the only mechanism whereby aPLs may mediate valve damage, at least in some patients.

Regarding the therapeutic considerations, first standard diuretics and vasodilators should be used in patients with valvular diseases complicated with congestive heart failure. However, most of cases with valvular lesions do not have any clinical symptoms, thus no particular treatments are required. According to the general therapeutic strategy for APS (15), antithrombotic agents (anticoagulation and/or antiplatelet agents) may be indicated as a prevention of recurrence of vascular disease in APS patients with valvular diseases who have already experienced a thromboembolic event. Immunosuppressive therapy against aPL-related valvular diseases is controversial. For the prevention of the recurrence of thrombosis in APS, steroids which may lower antiphospholipid levels do not give long-term benefit (16). However, considering the immunomediated mechanism in aPL-related valvular involvement, the inflammatory reaction in the affected valves may be suppressed by steroids (17). On the other hand, scarring and deformity of the valve after steroid administration may ultimately lead to valve dysfunction (9).

In APS, arterial thrombosis is one of the main clinical features. Of the APS patients with arterial events, more than 90% have cerebral arterial events but ischemic heart diseases are rarely found. One of the reasons is the high prevalence of valvular diseases in APS which may be correlated with cerebrovascular thromboembolic complications. Fibrinolytic agents (tissue plasminogen activator or urokinase) are commonly used for the acute phase of cerebral infarction, but they are a contraindication for cerebrovascular embolism because of the high risk of secondary cerebral bleeding. Although not all APS patients with stroke have cerebrovascular embolism, we should carefully consider the indication of fibrinolytic agents for the acute phase of stoke events in APS. Also from this point of view, we do agree with the conclusion raised by Morita et al (3) that patients with aPLs should be screened by echocardiography.
References