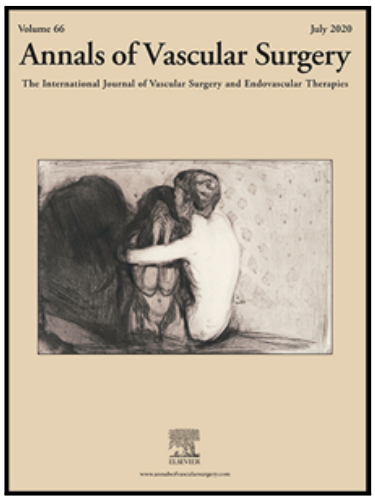

Immunological activity of peripheral blood lymphocytes points to lupus-related cause of stroke in lupus erythematosus

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Immunological activity of peripheral blood lymphocytes points to lupus-related cause of stroke in lupus erythematosus

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Patients with systemic lupus erythematosus (SLE) are at increased risk of 0.5% - 15% to acquire transient ischemic attacks or brain infarction [1]. The central question in a patient with either SLE or incomplete lupus erythematosus (ILE) is the cause, and the question: autoimmune related or induced by classical risk factors such as smoking, obesity, diabetes mellitus or patent foramen ovale (PFO) [2].

In order to efficiently prevent a relapse, the identification of individual causes for an ischemic insult is of great clinical impact. But unfortunately, even in cases with well-known risk factors the final reason for an acute ischemic attack and its recurrence may be unclear. To demonstrate both the dilemma, and a hint to solve it, a male patient with three ischemic infarctions and an unusual disease constellation, is presented. Since the patient did not fulfil the minimum of four criteria for the diagnosis of SLE, he was diagnosed as incomplete lupus erythematosus (ILE) that is characterized by milder symptoms, and less frequent involvement of internal organ manifestations [3, 4]. He lacked serum autoantibodies, but had an increased percentage of activated T-cells (CD3+ HLA-DR+) of 30% in his peripheral blood (normal range 0 - 5%).

Initially, he experienced a left frontal middle cerebral artery (MCA) territory infarction and approximately two years later a larger left subtotal MCA territory stroke. The second infarction occured despite the fact that the M1 segment occlusion had been fully recanalized via a minimal invasive procedure within 6 hours after symptom onset. Subsequently, an intense search for typical risk factors led to the detection of a patent foramen ovale (PFO), which percutaneously has been occluded with an Amplatz device [5]. Another two years later, however, he experienced a third stroke in the left anterior cerebral artery territory.

There are at least the above mentioned two options that could serve as explanation for the acute three strokes: PFO and the autoimmune disease activity of lupus erythematosus. A PFO,

present in 27% of the normal population, is considered as important cause for strokes in young patients [6], and can be identified in 40-60% of patients with cryptogenic stroke [7].

However, the role of the PFO as cause of the three infarctions can be questioned, because PFO-related strokes are most often posterior circulation infarctions and display multiple embolic lesions [8]. Since trials of PFO closure to prevent recurrent stroke have been inconclusive, Mas et al. investigated whether patients with cryptogenic stroke would benefit from such an intervention or anticoagulation [9]. They found that the rate of stroke recurrence was lower among those assigned to PFO closure combined with antiplatelet therapy than among those assigned to antiplatelet therapy alone [9].

At first glance it seemed unlikely that lupus-related immunological disturbances could have induced the brain infarctions, because he neither had autoantibodies nor a full-blown SLE. Although rarely, organ involvements including strokes can occur in patients with incomplete lupus erythematosus [3, 4]. Moreover, the patient had an increased proportion of activated T-cells in his peripheral blood. Interestingly, there is a body of evidence suggesting that atherosclerosis is accompanied by increased percentages of activated T cells [10]. Therefore, it could be likely that activated T-cells might contribute to atherosclerosis and finally to acute ischemic attacks or strokes in the presented case.

Taken together, the case underscores the above made statement that it may be difficulty to find the reason for acute strokes. Increased percentages of activated T-cells could possibly serve as biomarker for lupus erythematosus-induced acute ischemic attacks and strokes. Since these causal connection have not yet been investigated so far, clinical studies are warranted to further elucidate this interesting subject.

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