Cerebrovascular accident and myocardial infarction associated with anticardiolipin antibodies in a young woman with systemic lupus erythematosus

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SUMMARY A 26 year old woman with systemic lupus erythematosus, including malar rash, photosensitivity, and arthritis, developed a cerebrovascular accident and acute myocardial infarction. High titres to antinuclear factor, anti-DNA antibodies, positive Venereal Disease Research Laboratory (VDRL) test, and anticardiolipin antibodies were found in her serum. A possible association between the presence of anticardiolipin antibodies and the two major thrombotic events is discussed.

Recent studies suggest that anticardiolipin antibodies may be responsible for a variety of laboratory and clinical phenomena in up to 61% of patients with systemic lupus erythematosus (SLE). These include lupus anticoagulant, biological false positive test for syphilis, thrombocytopenia, recurrent abortions, intrauterine fetal death, and thromboembolism.¹⁻⁵

We describe here a young woman with SLE, not receiving corticosteroid treatment, who developed a cerebrovascular accident and acute myocardial infarction in the presence of a high titre of anticardiolipin antibodies.

Case report

A 26 year old woman was admitted in February 1986 because of crushing anterior chest pain of a few hours' duration. From the age of 12 she was known to have had a butterfly malar rash, photosensitivity, and recurrent bouts of arthritis. Five years before admission she developed a left hemispheric cerebrovascular accident due to thrombotic obstruction of the left internal carotid artery, which was confirmed by carotid arteriography. She denied risk factors for ischaemic heart disease, taking oral contraceptives, or receiving corticosteroid treatment. On admission she appeared acutely ill and her vital signs were

normal. The erythrocyte sedimentation rate was 97 mm/h. Haemogram and coagulation tests were normal. Urinary sediment, serum electrolytes, albumin, liver and kidney function tests, serum cholesterol, triglycerides, and high density lipoprotein cholesterol were normal. Creatine kinase was initially 182 U/l (normal <100 U/l) and reached a peak of 376 U/l on the second day, while aspartate aminotransferase was initially 30 U/l (normal <40 U/l) and increased to 60 U/l. The electrocardiogram on admission showed a non-Q wave infarction of the inferior wall. Echocardiography disclosed neither valvular abnormalities nor vegetations. Antinuclear antibody titre was 3 on a 1-4 scale. Venereal Disease Research Laboratory (VDRL) titre was 1/16. Anticardiolipin antibody concentration (measured by radioimmunoassay using ¹²⁵I protein A as a detecting developer) was 6090 cpm (normal <2000). Anti-DNA antibodies were 22 µg/ml (normal <1.5). Serum C3 was 530 mg/l and C4 was 340 mg/l (normal 600-1100 and 250-500 respectively). A skin biopsy showed no evidence of vasculitis.

On admission to the intensive care unit she responded remarkably to sublingual nitrates and calcium channel blockers. Treatment with nitrates and aspirin was started during the following hours. The laboratory investigation indicated that she had SLE, and treatment with prednisone (60 mg/day) was started. In the remainder of her hospital course we noticed severe emotional lability, which was attributed to her basic disease and to the steroid

Accepted for publication 20 February 1989.

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treatment. During the ensuing 30 months her corticosteroid treatment was tapered slowly and, presently (January 1989), she is receiving 10 mg prednisone daily and aspirin, and functions normally.

Discussion

The patient described here meets five of the revised criteria for SLE⁶: malar rash, photosensitivity, arthritis, positive antinuclear antibody test, and an immunological disorder (positive VDRL). Her clinical course is remarkable in that despite relatively mild disease that did not require intensive treatment she developed two life threatening thrombotic events in the brain and heart.

Cardiac involvement in SLE is well recognised and most frequently manifests as pericarditis, myocarditis, and endocarditis.⁷⁻⁸ Myocardial infarction during the course of SLE is rare and only a few cases have been reported.⁹⁻¹⁸ The pathogenesis of myocardial infarction in SLE is usually related to coronary atherosclerosis, possibly accelerated by corticosteroid administration.¹¹ Furthermore, coronary arteritis is a rare process, which may culminate in myocardial infarction in patients with SLE.¹⁰ Our patient's youth, the lack of risk factors for coronary heart disease, and the previous thrombotic event in the presence of anticardiolipin antibodies support the contention that the myocardial infarction was due to coronary artery thrombosis.

Anticardiolipin antibodies are detected in a spectrum of autoimmune disorders, and high serum concentrations have been measured in up to 61% of patients with SLE.¹ Harris *et al* provided data suggesting that lupus anticoagulant and anticardiolipin antibodies are identical and show closely related specificity. Their presence is associated with recurrent fetal loss, thrombocytopenia, and recurrent thromboembolic events, which is attributed to their inhibition of the prothrombinase complex.⁴⁻⁵ Among the thromboembolic events, cerebral infarction was frequent.¹⁹⁻²⁰ Eight out of nine patients with cerebral infarction had high concentrations of anticardiolipin antibodies.¹⁻¹⁹⁻²⁰ In addition, Petri *et al* found that 50% of patients with SLE and cerebral infarction had raised anticardiolipin antibody concentrations.²¹

Furthermore, anticardiolipin antibodies may be a useful marker in monitoring disease activity in patients with SLE.²²⁻²³ It is noteworthy that recurrent fetal loss in women with anticardiolipin antibodies/lupus anticoagulant can be reduced significantly by the use of steroids and aspirin.²⁴

The association between acute myocardial infar-

tion and anticardiolipin antibodies in patients with SLE is rare. Recently, Asherson *et al*¹⁸ and others²⁵ described myocardial infarction associated with anticardiolipin antibodies in young patients suffering from SLE, 'lupus-like' disease, and the 'primary' antiphospholipid syndrome. These data suggest that anticardiolipin antibodies may have had a pathogenetic role in the ischaemic events in our patient as well as in others.

We gratefully acknowledge the help of Mrs Shirley Roth in the preparation of this manuscript.

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