

Doppler studies in maternal autoimmune disease

Based on Doppler in Obstetrics: by K Nicolaidis, G Rizzo, K Hecher

SYSTEMIC LUPUS ERYTHEMATOSUS

Systemic lupus erythematosus (SLE), which affects about one in 1000 adults, is an idiopathic multisystem chronic inflammatory disease, characterized by the presence of circulating autoantibodies directed against nuclear antigens.

In pregnant women with SLE, the rate of fetal loss in the first trimester is similar to that in normal women (about 15%), but, in the second and third trimesters, the fetal loss rate is about 10%. The mechanism for this increase in fetal loss is unclear but may be related to placental dysfunction. About 25% of pregnancies in women with SLE are complicated by preeclampsia (PE). The reason for this increased frequency of PE may be related to the underlying renal disease. Fetal growth restriction (FGR) is found in about 20% of pregnancies. Distinguishing between an exacerbation of SLE involving active nephritis and PE is difficult, since they may both present with proteinuria, hypertension and evidence of multi-organ dysfunction. In the typical problem case, the patient develops hypertension and increasing proteinuria in the latter half of pregnancy. Elevated levels of anti-dsDNA and an active urinary sediment strongly suggest SLE. In severe and confusing cases, renal biopsy may be necessary to make the correct diagnosis.

ANTIPHOSPHOLIPID SYNDROME

Antiphospholipid syndrome (APS) is an autoimmune condition characterized by the production of moderate to high levels of antiphospholipid antibodies (lupus anticoagulant or anticardiolipin antibody) and at least one clinical feature (venous or arterial thrombosis, autoimmune thrombocytopenia and/or pregnancy loss). The risk of thrombosis in pregnancy in women with APS is sufficiently substantial to warrant prophylactic treatment with heparin.

Antiphospholipid syndrome is associated with early pregnancy loss; antiphospholipid antibodies are found in about 10% of women with recurrent first-trimester pregnancy loss (compared to about 2.5% in controls). About 50% of women with APS develop PE or worsening hypertension and about 10% of women with severe early onset PE (<34 weeks) have antiphospholipid antibodies. The syndrome is also associated with FGR which is found in about 30% of treated pregnancies. In women with APS treatment with thromboprophylactic doses of heparin and low-dose aspirin improves the chances of a successful pregnancy outcome.

Doppler studies

In pregnancies complicated by maternal SLE or APS increased impedance to flow in the umbilical arteries and possibly the uterine arteries is associated with increased risk of PE and FGR.

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