Background SLE complicated with antiphospholipid syndrome (APS) is very rare during pregnancy. Both SLE and APS can be associated with pregnancy failure, fetal loss and obstetric complications.

Methods We report on a 21-year-old female diagnosed with SLE, APS, and postpartum lupus encephalopathy and review the literature at home and abroad.

Results In this case, Acl IgA/G/M and ANA were positive. The patient with SLE combined with APS had premature rupture of the membrane for 28+3 weeks. The patient's condition was stable during 1 month of fetal treatment and the child was delivered live. She had a headache and blurred vision after caesarean section. Following the related auxiliary examination, the patient was diagnosed with lupus encephalopathy (activity). After immediate high-dose hormone pulse therapy, the patient's condition gradually recovered and the hormone gradually reduced. Until discharged, the patient had no other discomfort but her vision was 1.5 meters index. Two months after discharge, the general condition of the patient is better, the symptoms of encephalopathy have disappeared and her vision is largely restored.

Conclusion SLE patients with APS have a high-risk of pregnancy-related complications. Timely and clear diagnosis and positive and appropriate treatment can improve the prognosis of mother and infant, and reduce the incidence of complications.

| 18 | SUCCESSFUL DELIVERY OF A PATIENT WITH LUPUS NEPHRITIS COMPLICATED BY TWIN PREGNANCY |

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Background Systemic lupus erythematosus (SLE) is an autoimmune inflammatory connective tissue disease that involves multiple organs. Most scholars believe that pregnancy can aggravate SLE and SLE itself can also increase the incidence of adverse pregnancy outcomes. Therefore, in order to reduce SLE activity during pregnancy, the study suggests that pregnancy should be avoided for at least 6 months after the condition stabilizes. Successful delivery of natural twin pregnancy in lupus nephritis is extremely rare.

Methods A case of twin pregnancy with lupus nephritis is reported and the literature is reviewed.

Results The patient was a young female with twin pregnancies at 33+4 weeks, premature rupture of membranes and lupus nephritis. The 24 hour proteinuria was 4.87 g. Caesarean section delivered two live newborns with weights of 1680 g and 1850 g respectively. The mother and newborns were discharged from hospital 7 days after operation.

Conclusion Patients with lupus nephritis have a high risk of pregnancy-related complications. It should be managed jointly by experts in the Departments of Obstetrics and Rheumatology. Closely monitoring the change in the condition and terminating the pregnancy in time are needed to improve the maternal and infant outcome.

| 19 | DIAGNOSIS AND TREATMENT OF CARDIOVASCULAR DISEASE BASED ON NONLINEAR NETWORK CONTROL MODEL |

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Background Cardiovascular disease is one of the main diseases that threaten human health. Its pathological parameters models is the major difficulty in this field. Some hemodynamic parameters can help us improve lesion analysis and diagnosis, such as blood flow, blood pressure, and vascular resistance.

Methods We take the blood circulation system as a huge fluid network. A non-linear network model is built based on hemodynamic characteristics of mutual influence between the cardiovascular network, according to the circuit graph theory and system theory. Using the averaging method to obtain the harmonic solution of the periodical forced cardiovascular network, we can make diagnoses and analyses of cardiovascular disease based on blood flow. Some control methods are used to study cardiovascular disease treatment, in order to change blood flow and pressure by changing vascular resistance.

Results Taking the cerebral circulation network as a case of a local circulation system, through modeling and data simulation, we can develop different treatment options and methods by selecting different blood vessels as control branches Acupuncture, drug delivery and surgery treatment are improved by controller design. The model can be verified initially through the clinical data, which will provide a scientific reference and basis for treatment of cardiovascular diseases.

Conclusion The control parameters are used to control the lesion parameters. This is a new approach to fluid network control for new interdisciplinary applications in biomedical science.