treatment withdrawal is contemplated. Until improved blood or urine biomarkers have been developed, repeat biopsy will remain a useful tool for the clinic.

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Oral presentations

01 HYDROXYCHLOROQUINE BLOOD LEVELS AND RISK OF THROMBOTIC EVENTS IN SYSTEMIC LUPUS ERYTHEMATOUS

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Background Hydroxychloroquine (HCQ) has a primary role in the treatment of systemic lupus erythematosus (SLE). Beyond its pleiotropic immunomodulatory effects on TLR and type I interferon signaling, HCQ use has been found to be protective for thrombosis in SLE. Optimal dosing of HCQ in SLE is unknown. The longitudinal measurement of HCQ blood levels may provide an opportunity to individualize weight-based dosing strategies and reduce risk of toxicity. We examined the association of HCQ blood levels with thrombotic events in a longitudinal SLE cohort.

Methods 812 SLE patients with HCQ level measured prior to the thrombosis were included: 93% female, 43% African-American, 46% Caucasian. HCQ blood levels were quantified by liquid chromatography-tandem mass spectrometry. Mean HCQ blood levels ($\pm$ SD) over all cohort visits prior to occurrence of thrombosis were calculated for each patient. Thromboses were defined as venous (DVT/PE or other venous) or arterial thrombosis (stroke, myocardial infarction, digital gangrene or other arterial).

Results Thrombosis had occurred during prospective follow up in 44 patients (5.4%), venous in 3.0% and arterial in 2.5%. Lupus anticoagulant was strongly associated with a history of any thrombosis (OR 3.25, $P<0.0001$), venous thrombosis (OR 3.53, $P<0.0001$), and arterial thrombosis (OR 3.08, $P<0.0001$). A prospective analysis shows that for any thrombosis and for venous thrombosis, the HCQ blood level was significantly lower. Higher prescribed doses of HCQ (as opposed to HCQ blood levels) were also associated with decreased odds of any thrombosis and venous thrombosis in a separate cross-sectional analysis (OR 0.88, $P=0.04$ and OR 0.83, $P=0.009$, respectively for each 1 mg/kg increase in prescribed HCQ).

Conclusions HCQ blood levels are inversely associated with risk of any thrombosis and of venous thrombosis in patients with SLE in a prospective analysis. Reduction of HCQ dosing, as suggested by the American Academy of Ophthalmologists, could reduce or eliminate the benefit of hydroxychloroquine to prevent thrombosis.

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02 EFFECT OF TREATMENT ON ANTIPHOSPHOLIPID ANTIBODIES IN SLE

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Background Unlike primary antiphospholipid syndrome patients, most SLE patients with antiphospholipid antibodies are on one or more treatments for their SLE that might affect levels of their antiphospholipid antibodies. We examined the effect of prednisone and hydroxychloroquine on antiphospholipid antibodies in an SLE longitudinal cohort.

Methods 943 SLE patients, who were tested for each anticardiolipin isotype (aCL IgG, IgM and IgA; INOVA) and lupus anticoagulant (LAC; dRVVT with further confirmatory testing) for at least 10 quarterly clinic visits, were included. We compared visits positive for antiphospholipid antibodies (aCL>20 and aCL>40; dRVVT>45) to visits negative for antiphospholipid antibodies, with respect to treatment, using conditional logistic regression and conditioning on the patient.

Results Prednisone treatment significantly reduced the levels of aCL IgG isotypes (aCL IgG>40 and some prednisone but less than 10 mg/day, OR 0.61 95% CI 0.46–0.80 $p=0.0004$), but not aCL IgM, IgA, or LAC. Hydroxychloroquine treatment significantly reduced aCL IgG (aCL IgG>40, OR 0.35 95% CI 0.22–0.55 $p<0.0001$), aCL IgM (aCL IgM>40, OR 0.56 95% CI 0.36–0.87 $p=0.010$) and LAC (OR 0.71 95% CI 0.58–0.86 $p=0.007$) but not aCL IgA.

Conclusions Prednisone does not reduce IgM or IgA isotypes of anticardiolipin, or LAC. These results explain why prednisone does not reduce thrombosis in SLE. Hydroxychloroquine, on the other hand, significantly reduces all antiphospholipid types except for the IgA isotype of anticardiolipin. This may explain why IgA isotypes are more common in SLE. It may also explain why hydroxychloroquine leads to only a 50% reduction in thrombosis, as IgA isotypes do confer some risk of thrombosis.

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03 CHANGES IN GUT MICROBIOTA AFTER SYMBIOTIC SUPPLEMENTATION IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS: A RANDOMISED, DOUBLE-BLIND, PLACEBO-CONTROLLED TRIAL

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