SAT0417

PREDICTIVE VALUE OF FETAL UMBILICAL ARTERY DOPPLER IN PRETERM BIRTH IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

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Background: Pregnancies in women with systemic lupus erythematosus (SLE) resulted in an increase of preterm birth. The predictive value of fetal umbilical artery Doppler examinations for adverse pregnancy outcomes has been reported, while not widely be assessed in SLE pregnant women.

Objectives: To examine the predictive value of the fetal umbilical artery Doppler on preterm birth in pregnant women with SLE.

Methods: A fetal Doppler ultrasound examination was performed on all fetuses during the third trimester (28–36 weeks of gestation). The Doppler flow parameters of umbilical arteries were recorded, including pulsatility parameter (PI), resistance index (RI), the peak value of umbilical arteries at end-systole (Vmax, also abbreviate as S) and the peak value of umbilical arteries at end-diastole (Vmin, also abbreviate as D). The value of S/D was automatically calculated. The clinical data from 160 live births of SLE patients were analysed retrospectively.

Results: The mean age of SLE patients at pregnancy was (29.7±3.7) years old (20–37). Totally, 52 patients (32.5%) were preterm births and 76 (47.5%) were fullterm births without any other adverse pregnancy outcomes. The rate of preterm birth before 34 weeks was 26.9% and the number changed to 73.1% for those preterm deliveries after 34 weeks. Iatrogenic preterm birth was the most common cause of preterm birth (30 cases), followed by spontaneous preterm birth (12 cases) and preterm premature rupture of membranes (10 cases). The pulsatility index (PI), resistance index (RI) as well as S/D value of SLE patients with pre-term delivery was higher than that of patients with full-term delivery ($p<0.05$). The area below the ROC curve for PI, RI and S/D was 0.6 (95%CI 0.5–0.7), 0.7 (95%CI 0.6–0.8) and 0.6 (95%CI 0.5–0.7), respectively. PI with cut-off value of 1.0 indicated the highest risk of preterm birth, with sensitivity of 34.6% and specificity of 84.2%. Regarding 0.7 as the cut-off value for RI to predict preterm birth, the sensitivity was 50.0% and the specificity was 81.6%. The optimal cut-off value for S/D was 2.8, at which sensitivity (50.0%) and specificity (81.6%) had the best combination.

Conclusions: Pregnancies in lupus still had an increased risk of preterm birth. Umbilical artery Doppler was a useful monitoring measure for preterm birth in lupus pregnancies.

Disclosure of Interest: None declared

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SAT0418

CAN THE AUTOMATED NEUROPSYCHOLOGICAL ASSESSMENT METRICS (ANAM) PREDICT COGNITIVE IMPAIRMENT COMPARED TO A COMPREHENSIVE NEUROPSYCHOLOGICAL BATTERY IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS (SLE)?

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Background: The diagnosis of cognitive impairment (CI) is often delayed requiring use of a comprehensive battery (CB). The Automated Neuropsychological Assessment Metrics (ANAM) is a computerised tool that can be used to screen for CI.

Objectives: To determine the ability of ANAM (v4) GNS Battery to predict CI in patients with systemic lupus erythematosus (SLE).

Methods: SLE patients (n=98), aged 18–65 years, attending a single centre between July 2016–April 2017 were recruited. Participants were administered the ANAM and CB on the same day. ANAM throughput scores were used to provide an estimate of cognitive efficiency. Patient scores on the ANAM and CB were compared to a normative sample of age and gender-matched healthy controls. The CB evaluates the following major cognitive domains: manual motor speed and dexterity, simple attention and processing speed, visual-spatial construction, verbal fluency, learning and memory (visuospatial and memory), and executive

functioning (untimed and timed). ANAM evaluates the following major cognitive domains: attention and processing speed, memory, visual-spatial processing, executive functioning, abstract language function and fine motor processing. CI was operationalized on the CB and ANAM as a z-score of ≤ -1.5 on ≥ 2 domains or a z-score ≤ -2.0 on ≥ 1 domains, or either.

The performance of ANAM was compared against the CB using different CI definitions. Descriptive analysis was used to determine prevalence, sensitivity (Sn), specificity (Sp), Positive Predictive Value (PPV) and Negative Predictive Value (NPV).

Results: Of the 98 patients (90.8% female), the mean age at SLE diagnosis was 28.5±10.2 and disease duration at enrolment was 15.5±10.0 years. Prevalence of CI using CB ranged between 40.0%–44.8% ($z\leq -1.5$ in ≥ 2 domains and $z\leq -2.0$ in ≥ 1 domains, respectively) and 55.2% for either. Prevalence of CI using the ANAM ranged between 30.8%–39.3% ($z\leq -1.5$ in ≥ 2 domains and $z\leq -2.0$ in ≥ 1 domains, respectively) and 43.0% for either.

ANAM Sn/Sp was 52/73% and PPV/NPV was 70/55% [based on $z\leq -1.5$ in ≥ 2 domains or $z\leq -2.0$ in ≥ 1 domains for ANAM and CB (corresponding for A+B and E+F in table 1)].

Abstract SAT0418 – Table 1. Performance of ANAM against the CB

	Definitions of CI	Comprehensive Battery (CB)		
		$z\leq -1.5$ in ≥ 2 domains	$z\leq -2.0$ in ≥ 1 domains	
		E Sn/Sp PPV/NPV	F Sn/Sp PPV/NPV	E+F Sn/ Sp PPV/ NPV
ANAM	$z\leq -1.5$ in ≥ 2 domains	A 45/81% 62/68%	37/76% 55/61%	37/80% 69/51%
	$z\leq -2.0$ in ≥ 1 domains	B 55/76% 61/71%	49/72% 58/65%	50/80% 75/57%
		A 55/69%	51/67%	52/73%
		+B 55/69%	55/64%	70/55%

Sn sensitivity; Sp specificity; PPV Positive Predictive Value/NPV Negative Predictive Value

Conclusions: ANAM is a promising tool for the assessment of CI in SLE. Future studies are required to determine if the sensitivity of the ANAM can be improved against the current CB.

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SAT0419

RENAL AND OVERALL SURVIVAL ANALYSIS IN A COHORT OF PATIENTS WITH LUPUS NEPHRITIS WITH UP TO 40 YEARS OF FOLLOW UP

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Background: Although the prognosis has improved in the last decades, Lupus patients still have a 3-fold increase in mortality, compared with the general population. ¹Lupus nephritis (LN) is one of the most severe manifestations of this complex systemic disease, occurring in up to 60% of patients.

Objectives: 1) To obtain the overall and renal survival curves for a LN cohort; 2) To investigate factors affecting survival; 3) To identify the causes of death in this cohort.

Methods: Single-centre retrospective observational study, including all patients with biopsy-proven LN, followed at UCLH Rheumatology department from 1975 to 2017. Individual clinical files were reviewed to obtain demographic, clinical, laboratory and pathological data. We also recorded data on treatment with corticosteroids, immunosuppressants and antimalarials. We analysed overall survival and renal survival through the Kaplan-Meier method. COX regression analyses were conducted to investigate possible predictors of shorter survival. Significance level was defined at 0.05.

Results: 209 patients were included (table 1). Cumulative survival at 5, 10, 15 and 20 years after the diagnosis of LN was 92%, 86%, 81% and 76%, respectively. Main causes of death were infection (29%), malignancy (21%) and cardiovascular (21%). Regarding progression to end-stage renal disease (ESRD), cumulative renal survival at 5, 10, 15 and 20 years was 94%, 86%, 79% and 72%, respectively. Table 2 shows the predictors of shorter survival identified for this

cohort. Image 1 represents the Kaplan-Meier curves according to the factors affecting renal survival.

Abstract SAT0419 – Table 1. Characterisation of the UCLH cohort of Lupus Nephritis patients

		ISN ^{RNP 2003} classification							Total
		I	II	III	IV	V	VI	III+V or IV +V	
Total, N		2	18	38	97	38	2	14	209
Sex	F, N (%)	2	18	35	88	33	2	11	189 (90.4)
	M, N (%)	0	0	3	9	5	0	3	20 (9.6)
Ethnicity	Caucasian, N (%)	1	8	19	48	12	1	3	92 (44)
	Afro-Caribbean, N (%)	1	7	9	26	18	1	6	68 (32.5)
	Asian, N (%)	0	3	10	23	8	0	5	49 (23.4)
ESRD, N (%)		0	0	8	26	3	1	2	40 (19)
Deaths, N (%)		0	2	9	21	4	1	1	38 (18)
Age LN diagnosis, mean±SD						28.68±11.81			
Time FU since LN, mean±SD						12.95±8.96			

ISN/RNP: International Society of Nephrology and Renal Pathology Society; F: females; M: males; ESRD: end-stage renal disease; LN: Lupus nephritis; FU: follow-up.

Abstract SAT0419 – Table 2. Final models for predictors of shorter survival.

Multivariable COX regression	HR [95% CI] p
Overall survival	3.002 [1.461–6.171] 0.003
ESRD	
No antimalarials	2.942 [1.430–6.052] 0.003
Ethnicity (Afro-Caribbean)	2.656 [1.250–5.642] 0.011
Age at LN diagnosis	1.039 [1.012–1.067] 0.004
Renal survival	4.424 [1.542–12.695] 0.006
Histological class (III, IV or VI)	
Ethnicity (Afro-Caribbean)	3.727 [1.691–8.218] 0.001
No antimalarials	2.482 [1.237–4.982] 0.011

HR: hazard ratio; ESRD: end-stage renal disease; LN: Lupus nephritis

Conclusions: Cumulative survival rates and causes of death for this cohort are comparable with other cohorts of LN. ESRD confers the higher risk for death; African or Caribbean ethnicities and not taking antimalarials predict shorter overall and renal survival among these patients.

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SAT0420

INCREASED RESISTANT HYPERTENSION IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS: A RETROSPECTIVE COHORT STUDY

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Background: Resistant hypertension (RHTN) is characterised by blood pressure that remains $\geq 140/90$ mmHg despite concurrent use of 3 antihypertensive drugs. In the general population, RHTN is associated with a 47% increased risk of cardiovascular events.¹ Patients with systemic lupus erythematosus (SLE) have increased cardiovascular risk; however, no research has addressed the incidence, prevalence, or risk factors associated with RHTN in patients with SLE.

Objectives: To compare the risk of RHTN in patients with SLE and frequency-matched controls without SLE; to define factors associated with RHTN in patients with SLE.

Methods: We used a validated algorithm (94% PPV) to identify patients with SLE from the electronic health records (EHR) at an academic medical centre.² We established a control cohort matched by age, race, and sex with a 5:1 control-case ratio. Follow-up began at first ICD9 code for SLE (cases) or first ICD9 code (controls) and continued until RHTN diagnosis or last note. RHTN diagnosis required either the simultaneous use of 3 antihypertensive drugs and a mean blood pressure $\geq 140/90$ mm Hg in the following 6 months, or the use of ≥ 4 antihypertensive drugs simultaneously. We used logistic regression and Cox proportional hazards (CPH) models to compare risk of RHTN between groups, with CPH performed on incident cases only.

Results: We studied 1044 patients with SLE and 5241 controls (median age 42, [31–54] 90% female and 70% Caucasian). Of the total cohort, RHTN developed in 106 SLE patients (10%) and 278 controls (4%). The incidence rate of RHTN was 14.7 cases/1000 person-years in SLE patients compared to 7.4 in controls [HR 1.66, 95% CI, 1.25–2.21] (figure 1). In logistic regression models, RHTN was associated with older age, black race, male gender and end stage renal disease (ESRD). Patients with SLE had a higher risk of RHTN when adjusted for age, sex, race, calendar year, and ESRD [HR 1.53, 1.15–2.05]. In an analysis among SLE patients, RHTN was associated with mortality in an unadjusted model [HR 3.38, 2.20–5.18]. This association remained when age, sex and race were added to the model [HR 2.58, 1.65–4.03], but when ESRD, calendar year and creatinine were included, the association was no longer significant [HR 1.51, 0.91–2.51].

Abstract SAT0420 – Figure 1. Cumulative Incidence of RHTN in SLE versus Control Cohort

Log rank test: $p=0.000391$

Conclusions: Patients with SLE have a higher risk of RHTN compared to frequency-matched controls. RHTN is an important comorbidity for clinicians to recognise in SLE, as it is associated with a 3.3-fold higher risk of mortality.

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SAT0421

LONG-TERM IMMUNOGENICITY OF A QUADRIVALENT HUMAN PAPILLOMAVIRUS VACCINE IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

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Objectives: To report the 5 year immunogenicity of a quadrivalent human papillomavirus (HPV) vaccine (GARDASIL) in patients with systemic lupus erythematosus (SLE).

Methods: Female SLE patients and healthy controls, aged 18–35 years, who received GARDASIL in the year 2011 and sero-converted 12 months post-vaccination were followed for the persistence of immunogenicity at 5 years. Antibodies to HPV serotypes 6,11,16,18 were repeated at 5 years using an IgG immunoassay developed on a Luminex microsphere platform (total IgG LIA; Merck Research Laboratory). The rate of sero-reversion was compared between