Objectives: In this analysis, we aimed at determining the predictors of ON in a longitudinal lupus cohort in which Caucasian and African-American ethnicities are well represented.

Methods: The data were reviewed from the initiation of the cohort in 1987 until October 2019. 2428 patients were included in the analysis based on 224295 person-months of follow-up. ON was recorded using the Systemic Lupus Erythematosus International Collaborating Clinics/ American College of Rheumatology (SLICC/ACR) Damage Index. To calculate the rate of ON in each demographic and clinical subgroup, we calculated the number of ON events divided by the number of person-months at risk and converted this rate to rates per person-year. To assess the relationship between risk factors and rates of ON events, we used the pooled logistic regression. Rate ratios were adjusted for age. After identifying a set of variables related to ON incidence, we fit a final multivariable model to identify the most important risk factors for incident ON.

Results: 287 ON cases were identified, giving a point prevalence of 11%. ON cases that occurred before cohort entry were excluded. 122 incident events of ON occurred after cohort entry and were included in the final analysis. In the multivariable analysis, African-Americans were at twice the risk for ON compared to Caucasians. Male gender and smokers had about 80% and 50% increased risk of ON compared to females and non-smokers respectively. For every 10 year increase in the age there was a 20% reduced risk for ON. Patients diagnosed after the 1990's had a 50% reduced risk of ON compared to those diagnosed before 1990's. A highest daily dose of prednisone of 40 mg or higher, even when administered for a month or less, increased significantly the risk of ON. Use of pulse steroid was not associated with an increased risk of ON.

Conclusion: Ethnicity remains an important determinant in the risk of ON. African-American SLE patients are at double the risk of ON compared to Caucasians. APOL1 risk variants confer an increased risk of ON in this high-risk ethnic group. Oral prednisone more than 40mg daily administered for a month or less, at any point in the disease course, remains the most important predictor of ON. Prednisone-free or prednisone-limited regimens should be reinforced in SLE trials.

Table 1. Associations between ON rates and corticosteroids dose and duration based on a multivariable model

Predictor		RR (95% CI)	p-value
Max prednisone and duration	0- 40 mg/day for <=1 month	1.00 (Ref)	
	0- 40 mg/day for >1 month	1.49 (0.68, 3.26)	0.3162
	40-60 mg/day for <=1 month	2.76 (1.18, 6.39)	0.0182
	40-60 mg/day for >1 month	3.87 (1.73, 8.62)	0.0009
	>=60 mg/day for <=1 month	6.6 (3.37, 12.93)	<0.0001
Sex	>=60 mg/day for >1 month	5.15 (2.55, 10.4)	<0.0001
	Male (vs. Female)	1.79 (1.04, 3.10)	0.0373
Ethnicity	African American (vs. Caucasian)	1.94 (1.32, 2.83)	0.0007
Year of SLE diagnosis	1990 and after (vs. before 1990)	0.53 (0.36, 0.77)	0.0008
Age	Per 10 year increase	0.77 (0.66, 0.89)	0.0006
Smoking	Ever (vs. never)	1.51 (1.04, 2.19)	0.0293

Table 2. Associations between ON rates and pulse steroid stratified by max prednisone

Subgroup	No. of ONs	Person years	Rate per 1000 person years	Age-adjusted RR (95% CI)	Age-adjusted p-value
Pulse among those with maximum prednisone dose of <40 mg	No	21	6752.1	3.11	1.00 (Ref)
	Yes	2	387.8	5.16	1.69 (0.40, 7.20)
Pulse among those with maximum prednisone dose of >=40 mg	No	88	7202.3	12.2	1.00 (Ref)
	Yes	8	959.2	8.3	0.71 (0.35, 1.48)
Pulse among those with maximum prednisone dose of >=60 mg	No	64	4329.9	3.11	1.00 (Ref)
	Yes	7	622.4	5.16	0.79 (0.36, 1.72)

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THE LONGER THE DELAY IN DIAGNOSIS, THE WORSE THE OUTCOME IN SLE – CROSS SECTIONAL ANALYSIS OF A GERMAN LONG-TERM STUDY (LULA COHORT)

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Background: Patients with systemic lupus erythematosus (SLE), even compared to those with other rheumatic diseases, are thought to often experience a long delay from the onset of symptoms to diagnosis.

Objectives: Our aim was to study the association of this delay to the long-term outcome of the disease.

Methods: Information on demographics, onset of first symptoms, first physicians visit, time of diagnosis and organ involvement was assessed by self-reported questionnaires among SLE patients in Germany in 2011 (LuLa cohort, n=585). Disease related damage (Brief Index of Lupus Damage; BILD), disease activity (Systemic Lupus Activity Questionnaire; SLAQ) and health related quality of life (SF-12) were chosen as proxies for outcome. The association to the outcome of the disease was analyzed by linear regression analysis, adjusted for age, disease duration, organ involvement and sex.

Results: In our cohort, the mean reported duration between the onset of symptoms and the diagnosis of SLE was 46 months (SD 73), which includes 13 months (SD 41) between the onset of symptoms and the first physicians visit. The participating patients were diagnosed between 1960 and 2004.

Linear regression analysis revealed that longer time to diagnosis was associated with (i) higher disease activity (SLAQ, p<0.0001, β =0.199), (ii) higher disease-related damage (BILD, p=0.002, β =0.137) and (iii) lower health-related quality of life (SF-12 physical p=0.004, β =-0.136, SF-12 mental p=0.004, β =-0.143) in the year 2011. The organ involvement at the time of diagnosis did not alter these results.

Conclusion: A delay in diagnosis was associated with a worse outcome in SLE (disease activity, disease-related damage and health-related quality of life). Therefore, an early diagnosis seems to be important to improve the long-term outcome of the disease. It will be interesting to see whether adopting the new EULAR/ACR 2019 classification criteria can contribute to a faster diagnosis and a better outcome in consequence.

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SEMI-DYNAMIC MRI OF THE EXTENSOR DIGITORUM TENDONS IN JACCOUD ARTHROPATHY

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Background: Jaccoud arthropathy (JA) is a rare joint deformity mostly associated with systemic lupus erythematosus (SLE) (1). JA may be defined as a reversible deformity of the hands during flexion with ulnar deviation and swan neck deformities of the fingers. The physiopathology and the mechanisms leading to JA still remain to be elucidated.

Objectives: To test the hypothesis that Jaccoud arthropathy (JA) in systemic lupus erythematosus (SLE) patients is associated with abnormal extensor digitorum (ED) tendons displacement during flexion of the metacarpophalangeal (MCP) joints.

Methods: 16 SLE patients with JA (JA+), 12 SLE patients without JA (JA-) and 24 control subjects were included in the study. Transverse spin echo T1-weighted MR sequences of the MCP joints in flexion and in extension were obtained in each hand of SLE patients and in one randomly-selected hand of control subjects. Two radiologists separately measured the amplitude and the direction of the displacement of the ED tendons with respect to the midline at the level of the MCP joints. Statistical analysis included two-way ANOVA with random effects to assess differences in amplitude (p<0.0083), Fisher-Freeman-Halton exact test to